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THE STATUS OF VACCINE AND SERUM THERAPY IN OPHTHALMOLOGY *

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The immunization treatment of infectious diseases is conducted by the introduction into the system of (a) substances—antigens—which stimulate the tissues to the production of antibodies ("active" immunization); and by the introduction of (b) antibodies that are already formed ("passive" immunization). To the first class of substances belong tuberculin and the bacterins; to the second the serums (substances containing antibodies). If the powers of the tissues of an individual are exhausted so that they can no longer respond to the stimulus of an antigen it is useless and even deleterious to introduce the antigen. Hence the necessity for knowing the condition of the individual in this respect and of avoiding overdosage. In the introduction of antibodies (serums) the conditions of the tissues relative to their ability to develop antibodies is not a part of the question. The problem here is how much of antibodies is required and how much the tissues will tolerate without injury. It will be seen that "active" immunization will be efficient or of no value in proportion to the ability of the tissues to respond and in proportion to the proper estimation of the dosage, always provided that the antigen is suitable. Broadly speaking, bacteriemia is an indication that the tissues are exhausted and that they will not respond to added antigen. In the second case it is a question of proper antibody and proper dosage.

VACCINES (BACTERINS)

TUBERCULOSIS

In the treatment of tuberculosis of the eye various tuberculins are employed.

1. Koch's original tuberculin, "T. O.," is a filtrate of an emulsion of bouillon culture of tubercle bacilli, containing products of the growth of the bacilli, substances extracted from the bacilli and the unaffected constituents of the bouillon. In process of preparation it is heated to a temperature of 70 to 90 C.; the heating is thought to impair its therapeutic value.

2. Koch's new tuberculin, "T. R.," is a centrifugalized extract of dried tubercle bacilli. The sediment obtained by centrifuging is dried, reground and dissolved in glycerin and water.

3. Bacillus emulsion, "B. E.," is made by filtering off the liquid of the bouillon culture and washing, drying and triturating the bacilli in a mortar until no whole bacilli remain. The powder is taken up in 0.8 per cent salt solution and added to 50 per cent. glycerin water so that 1 mg. of the powder is contained in 0.2 c.c. of the final preparation. The emulsion is subjected to a temperature of 60 C. in order to destroy any possible intact bacilli.

4. Bouillon filtrate, "B. F." (Denys), is the unheated filtrate of bouillon cultures of human tubercle bacilli.

It will be noted that the tuberculins are closely allied to bacterins; in fact, Koch's new tuberculin, "T. R.," and bacillus emulsion, "B. E.," are virtually bacterins.

Tuberculins may be prepared from bovine or human strains of the tubercle bacilli, may be used separately or may be combined in any proportion.

In any given case of ocular tuberculosis, it is desirable to ascertain the strain of bacillus responsible for the disease. If this is impossible, it is feasible to employ the tuberculin from the human or the bovine strain, whichever will give the best results; or a mixed tuberculin may be used.

As is well known, it is often necessary to resort to the reaction of the system or tissues in tuberculosis to make a diagnosis of tuberculosis of the eye, either by hypodermic injection by the conjunctiva (Calmette) or cutaneous (von Pirquet) test. It is now generally admitted that the only test that is of any value is that which induces a local reaction in the eye following the subcutaneous injection of tuberculin. A reaction to tuberculin, by whatever method employed, implies that there is a tuberculous focus in some part of the body, but unless the reaction is evident in the eye, there is absolutely no proof that the disease of the eye is tuberculous. Increased hyperemia of the ocular conjunctiva or of the growth and the surrounding tissues must occur. If this reaction takes place, the diagnosis is positive. If it does not take place, the probabilities are that the person is not tuberculous, but the possibility is not excluded.

The method of obtaining the general (and local) reaction of tuberculin by subcutaneous injections of tuberculin is admirably described by Dr. Trudeau as follows:

> The range of the patient's temperature is ascertained by taking it at 8 a. m., 3 p. m., and 8 p. m., for three days before making the test. The first injection should not exceed 0.5 mg., and if any fever is habitually present should even be less, and is best given early in the morning or late at night, as the typical reaction usually begins, in my experience, within six to twelve hours. Such a small dose, while it will often be sufficient to produce the looked-for rise of temperature, has under my observation never produced unpleasant or violent symptoms. An interval of two or three days should be allowed between each of the two or three subsequent injections it may be necessary to give, as reaction in very rare cases may be delayed for twenty-four or even thirty-six hours. On the third day a second dose of 1 mg. is given, and, if no effect is produced, a third dose, of 2 mg., three days later. In the great majority of cases of latent tuberculosis an appreciable reaction will be produced by the

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

time a dose of 2 mg. has been reached. If no effect has been caused by the tests applied as above, I have usually gone no farther and concluded that no tuberculous process was present. If some slight symptoms, however, have been produced by a dose of 2 mg., it may be necessary to give a fourth injection of 3 mg. in order to reach a positive conclusion. Nevertheless it should be borne in mind that in a few cases the exhibition of even larger doses may cause reaction, when the smaller do not, and indicate the existence of some slight latent tuberculous lesion, and the negative result should not, when applied within the moderate doses described, be considered absolutely infallible. It is evident that the size of the doses given has much to do with the limitations of this method for usefulness, and the correctness of the conclusions reached by its application. The tuberculin used is also a matter of some importance, in determining the dosage, as different samples vary considerably in their efficiency. If the test be pushed to the injection of such large amounts as 10 mg. or more, as advocated by Maragliano, such doses are by no means free from the objection of occasionally causing unpleasant and sometimes dangerous symptoms; and even if the amount given be not carried to the dose of 10 mg., which is known to produce fever in healthy subjects, it is likely that on account of individual susceptibility or the presence of some other morbid process in the body, reaction will be found to occur with the larger dose when no tuberculous process exists. The adoption of an initial dose so small as to guard against the absolute possibility of producing violent reactionary symptoms, and the graded increase of the subsequent doses within such quantities as are known never to produce reaction in healthy individuals, would seem to afford the best protection against unpleasant results and misleading evidence.

In the tuberculin treatment of tuberculosis of the eye, tuberculin "T. O." is used but little for therapeutic purposes because of its having been subjected to a quite high temperature. "T. R." and "B. E." apparently possess greater therapeutic value, although they may have been subjected to a temperature of 50 C. for a short time. "B. F." is thought to be the most efficacious.

The method of treatment (the diagnosis having been made) at present advocated by those of large experience is the method of von Hippel, beginning with a very small dose of "T. R.," "B. E." or "B. F.," not more than 1/500 mg., and increasing by 1/500 mg. each dose; the dose to be given every third day if no general reaction has been occasioned in the early treatment of the case; less frequently as the patient improves. The tuberculin should not be given if there has been any reaction until the temperature has returned to normal and has remained so for at least forty-eight hours. It is advised so to regulate the dose that the effect on the patient is just short of the general reaction. As the treatment advances, a larger dose will be tolerated, but the maximum dose should not exceed one milligram.

The tuberculin, properly diluted, is injected subcutaneously into the subcutaneous areolar tissue of the abdomen, subscapular region, or arm after the skin at point of puncture has been thoroughly rubbed with 95 per cent. alcohol. The puncture may be subsequently sealed with collodion.

In an article which I recently presented to the Section on Ophthalmology, Sixteenth International Medical Congress at Budapest, fifty-eight cases of tuberculosis of the eye, including tuberculosis of the eyelids, conjunctiva, cornea, sclera, iris, chorioid, and retina were cited. These cases occurred in the practice of ophthalmologists in the United States and Canada. Of this number, virtual cures were observed in thirty-five and improvement in fifteen cases. The form of tuberculosis that is least amenable to treatment is the conglomerate tubercle. This form occurs in the vascular tunic of the eyeball and in the optic nerve.

The preparations of dead bacteria used for inoculating individuals are termed vaccines. It has been conclusively proved that a vaccine which is prepared from the same strain of bacteria (autogenic), against which the vaccine is to be used, is the most efficient in the particular case. In other words, the vaccine is specific for the strain from which it is made. If this strain cannot be obtained for making the vaccine, some complementary element may be found in each of a number of heterogenous strains, the sum of which may almost equal the specific strain. The latter are termed "polyvalent" vaccines or "stock" vaccines.

Wright advises injecting the vaccine in the loose subcutaneous tissue as near the site of the lesion as possible and "up-stream" as regards the flow of the lymph, in order that the "opsonins" resulting may be carried as directly as possible to the disease area in the lymph-stream. The sites usually selected are the loose tissue of the back, the lumbar region, or the groin.

GONOCOCCIC VACCINE

As this micro-organism is not readily cultivated it is difficult to obtain autogenous vaccine. "Stock" gonococcic vaccine occurs on the market in bottles containing 1 c.c. of an emulsion in two strengths, one of 20,000,000 and one of 100,000,000. In regard to the dose, Cole and Meakins[1] gave an initial dose of 300,000,000 gonococci, and a dose of 1,200,000,000 did not produce any unfavorable symptoms. They say: "In no case have we seen the administration of gonococci vaccine do harm." It must be remembered that vaccines are antigens, and that their capacity to excite the development of antibodies depends on the capacity of the tissues to react to their stimulus and not on the size of the dose. It is held by the Wright school that the condition of the tissues in this respect can be determined by a study of the "opsonic index;" this study requires the time of a skilled laboratory worker, which is not always at the command of the clinician.

Many clinicians are of the opinion that the opsonic index does not furnish data that are of any more value than the clinical manifestations; they rely on the local and general reaction occasioned by the vaccine and the effects on the course of the disease. Although large doses of gonococcus vaccine are well tolerated, the tendency now is to give smaller doses than formerly; it may range from 2,500,000 to 50,000,000. In a case of metastatic gonorrheal iritis which I recently treated successfully the initial dose was 2,500,000, subsequent dose 5,000,000 each.

Gonococcic vaccine is regarded as valuable as an aid to the diagnosis of obscure affections due to the gonococcus. Irons[2] writes:

> A typical gonococcus reaction is characterized by a rise in temperature, often only slight . . . and a variable degree of malaise. The symptoms follow the injection in from eight to twelve hours and commonly last about twenty-four hours. Frequently there is a decided tenderness at the site of the injection, greater than occurs after the inoculation of the same dose of the same preparation in normal subjects. Occasionally there is a marked redness and edema, lasting from twenty-four to forty-eight hours. . . The degree of reaction is influenced by several factors. After small doses (20,000,000 to 50,000,000) the reaction was not marked, and in a number of early cases either did not occur or was overlooked . . . The reaction is in many subjects similar to that which follows injections of tuberculin in cases of tuberculosis.

1. Cole and Meakins: Bull. Johns Hopkins Hosp., June and July, 1907.
2. Irons: Jour. Infect. Dis., June 4, 1908.

In obscure cases of uveitis, iritis and metastatic conjunctivitis, the gonococcic vaccine promises to be of service in clearing up the etiology.

It is now generally recognized that gonococcic vaccine is of little value in acute gonorrheal infection either of the urethra or of the eye. Of seventy-nine cases of acute urethral gonorrhea tabulated by Duncan[3] "satisfactory" results were obtained in nine, slight improvement noticed in ten, no improvement in sixty. The cases of acute gonorrheal infection of the conjunctiva treated with gonorrheal vaccine known to me are only three in number. In thirteen cases of chronic gonorrhea occurring in females, satisfactory results were obtained in eleven; no result in two. Of forty-six cases of gonorrheal arthritis, satisfactory results were obtained in forty-two; no result in four (Duncan). Of chronic gonorrheal affections of the eye, Posey (personal communcation) reports a severe case of uveitis not benefited, and Dr. S. Hanford McKee three cases of metastatic gonorrheal conjunctivitis. All ran a mild course. The vaccine appeared to relieve the pain greatly in the joints affected with gonorrheal rheumatism in these patients.

Two cases of gonococcal iritis in patients with arthritis in which fluid from the synovial sacs gave gonococci were reported to me by Dr. Charles A. Oliver. On the use of gonococcic vaccine "both cases showed some local reaction with marked recrudescence of joint lesions. The first improvement was probably more rapid than I have formerly seen, but of this I am uncertain."

I have recently treated a case of double metastatic gonorrheal iritis occurring in a negro of 23 years who had a gleet. In the right eye the anterior chamber was about one-quarter full of plastic lymph; in the left eye there was very little plastic lymph. The patient was admitted to the New York Eye and Ear Infirmary. Rest in bed and atropin were the only measures employed other than the vaccine. The initial injection was one of 2,500,000 followed in twelve hours by a similar dose; twenty-four hours later a dose of 5,000,000, which was repeated in twenty-four to forty-eight hours. Recovery occurred in about twelve days. Some of the plastic lymph was removed from the anterior chamber of the right eye. It did not show gonococci, nor were cultivations obtained on blood-agar. The discharge from the gleet showed gonococci.

From the evidence adduced it is very well proved that gonococcic vaccine is a valuable therapeutic agent in the treatment of the manifestations of chronic gonorrhea.

STREPTOCOCCIC VACCINE

Streptococcic vaccine is put on the market in 1 c.c. quantities, the strength of the preparation being indicated on the package. The dose recommended by Sir A. E. Wright is 10 to 20 millions, the minimum dose to be the initial dose, this to be increased according to the toleration of the patient; injections to be intramuscular.

In 58 cases of erysipelas tabulated by Duncan,[3] seven patients were "cured;" in fifty the result was "satisfactory," and in one no result was obtained. This vaccine may be of value in cases of erysipelas affecting the eye. C. R. Holmes has employed the vaccine in erysipelas. "Some cases were greatly modified, but in none of them was there any decided result."

STAPHYLOCOCCUS VACCINE

With the staphylococcus, as with almost all microorganisms, it is the opinion of clinicians that the vaccine made of the "autogenous" strain gives better results than vaccine made of a number of heterogenous strains combined (polyvalent).

It is well known that the staphylococcus is a factor in the production of the eczematous processes of the lids, conjunctiva and cornea of some abscesses of the lid of some forms of blepharitis marginalis, and of suppurations of the globe after traumatism of whatever kind.

The following cases of the use of staphylococcic vaccine have been reported:

Alexander Duane of New York reports a case of sluggish purulent infection of the eye. Hypodermic injections of a polyvalent vaccine of the *Staphylococcus aureus* were given with apparently good results. Six injections were given in seventeen days, beginning with a dose of 240,000,000.

Frank C. Todd of Minneapolis reports one case of chronic hordeola, with pustules on the face and eczema around the nostrils. The patient had been treated for this condition from time to time for five years. Hypodermic injections of an autogenic vaccine of *Staphylococcus aureus* were followed by complete recovery.

Charles A. Oliver of Philadelphia has employed autogenic vaccine of the *Staphylococcus albus* in cases of recurrent hordeoli, injecting in the corresponding arm and upper dorsal region with apparent good results.

H. Gradle of Chicago has treated a number of cases of eczematous conjunctivitis and keratitis, with eczema about the nares, with autogenic staphylococcus vaccine with very successful results, not only as regards recovery from the local disease but also in improvement of the general condition of the individuals.

COLEY'S TOXIN

Coley's toxin is in reality a bacterin or vaccine composed of a mixture of *Streptococcus pyogenes* and *Bacillus prodigiosus*.[4] The method of preparation is described in Coley's article.[5]

The initial dose should be ¼ minim, diluted with a few drops of sterile water, hypodermically injected, remote from the tumor. After a few injections, if the reaction is not great, the toxins in the same dose may be injected into the growth. The reaction when the toxins are injected into the growth is greater than when it is injected remote from the growth. Coley states that "the dose should be gradually increased by ¼ minim when injected into the tumor, by ⅓ to ½ minim when injected outside the limits of the tumor, until the desired reaction is obtained. The best results are obtained by doses sufficiently large to produce moderately severe reactions, a temperature of 102 F. to 104, with or without chills." The dose is repeated when the temperature reaches the normal.

Coley states that carcinoma is not influenced by the treatment, and he has not had a recovery in melanotic sarcoma. He reports having treated 430 cases of inoperable sarcoma with the mixed toxins. In forty-seven cases the growth completely disappeared; in twenty-eight cases a period of from three to fifteen years has passed since the disappearance. The treatment has also been employed as a preventative to recurrence after operation, with apparent good results.

A number of brief reports of cases affecting the eye or orbit have been obtained.

W. E. Jack, Boston, Mass.: Sarcoma of orbit; toxins injected into the growth and into the arm. Local reaction

3. Duncan: New York Med. Jour., Nov. 6, 1909.

4. This form of treatment originated from the recorded fact (J. Bland-Sutton: Tumors, Innocent and Malignant, Ed. 4, p. 303) that inoperable sarcoma has been known to disappear after an attack of erysipelas. The prodigiosus element was incorporated after it was shown by Rogers that by growing the *Bacillus prodigiosus* with the streptococcus of erysipelas the virulence of the latter was increased.

5. Coley: Boston Med. and Surg. Jour., Feb. 6, 1908.

occurred when the toxins were injected into the growth. Result negative.

George E. De Schweinitz, Philadelphia: Inoperable sarcoma affecting the antrum. Result "most unfavorable." Obliged to discontinue treatment.

Henry A. Brandoux, St. Paul, Minn.: Two cases, one of which resulted in a cure. The second case resulted in death after exenteration of the orbit and the subsequent removal of a recurrent growth on the inferior margin of the orbit.

Coley[6] mentions a personal report of R. Tilly of Chicago: "Adult male, aged 24; inoperable sarcoma of orbit which disappeared under three weeks' treatment with the serum."

J. E. Weeks, New York: Case of recurrent melanotic sarcoma of the orbital tissue in a man aged 72 years. After exenteration of the orbit, Coley's fluid was injected as a preventive to recurrence for three weeks and again after an interval of about three weeks for three weeks longer. The injections were given every third day. Metastasis, apparently in the liver, occurred three years later, causing death.

SERUMS

DIPHTHERIA ANTITOXIN

The great value of this serum is too well known to require further elaboration here. The initial dose is 1,500 to 6,000 units, according to the age of the patient and the severity of the infection. The diphtheria antitoxin globulins are employed in proportionate strength. The dose may be repeated in twelve hours if no improvement is noted; in twenty-four hours, if improvement is moderate. In ocular diphtheria two injections are frequently sufficient; should there be an arrest in the improvement, however, or should the improvement be very slow, a third or fourth injection may be given.

GONOCOCCIC SERUM

The serum of Rogers and Torrey is made by a number of manufacturers. It is obtained from the sheep some days after the injection of living gonococci into the peritoneal cavity.

The serum is usually injected into the loose subcutaneous tissue between the skin and deep fascia of the upper arm. Any other convenient place may be used. The dose is ordinarily 2.5 c.c., repeated every forty-eight hours. This general rule is modified by the general condition of the patient and the degree of reaction occasioned.

A number of cases of conjunctivitis have been treated with the serum, both by local application and by injection, with little or no benefit. With iritis the results have been very promising in the few cases treated by this method.

Dr. Arnold Knapp[7] reports the following case of gonorrheal iritis treated by Torrey's serum:

J. W., gonorrhea contracted two and a half years previously, metastases in joints, pericarditis and three attacks of iritis. The last three attacks treated with Torrey's antigonococcic serum. Iritis characterized by pain, fibrinous exudate, marked ciliary congestion; no adhesions. Symptoms aggravated in both attacks after second or third injections. Condition of eyes then rapidly improved, clearing in from two to three weeks from onset. Ten injections on each occasion.

As far as one case could show, the serum is a remedy of value and deserves further trial. Thus far its action and mode of use are not understood.

Dr. Torrey, in discussing the above case, stated that the inflammation and exudate became more marked after the first injections. This corresponds to the action of the serum in gonorrheal arthritis.

In a personal communication Dr. Arnold Knapp reports having treated three other cases, with cure in two and an indefinite result in one.

Dr. C. W. Cutler[8] has employed serum treatment in a few cases of gonorrheal ophthalmia. He injected it hypodermically in the case of two infants and also dropped it in the eyes without any reaction or pain. Both recovered. One was a moderately severe case and seemed to improve after each injection. The routine treatment was continued, however.

Dr. George S. Derby of Boston, in a personal communication, reports one case of acute gonorrheal ophthalmia in which the Rogers-Torrey serum was employed. The result was negative.

Dr. R. H. Herbst[9] of Chicago gives the following results of the treatment of general gonorrheal infection which will be of value here as indicating what may be expected by use of this serum. Fifty-two patients, including almost every form of gonococcus infection, were injected with this serum. Of this number, 45 were treated in the clinic at Rush Medical College; 7 were private patients. They were divided into six groups as follows:

1. Acute gonococcus infection of the anterior or anterior and posterior urethra, with or without infection of the prostate and seminal vesicles.
2. Subacute gonorrhea of the anterior or anterior and posterior urethra.
3. Chronic gonorrhea of the anterior or anterior and posterior urethra.
4. Acute gonococcus infection of the epididymis.
5. Acute infection of the joints.
6. Chronic gonorrheal joints.

In the first group, namely, the acute gonococcus infection of the anterior and posterior urethra, seventeen individuals were injected. These patients were given the maximum dose, 6 c.c., as frequently as the reaction would allow, without any change in the discharge from the urethra or other symptoms.

In Group 2, subacute gonorrhea of the anterior urethra or anterior and posterior urethra, nine patients were injected. Eight of these did not show any improvement after repeated injections, one cleared up after the third injection.

In Group 3, chronic gonorrhea of the anterior and posterior urethra, eleven patients were injected. Seven did not show any improvement; one cleared up after eight injections given during a period of four weeks, one after six injections given during a period of three weeks, and two passed clear urine after four injections given during two weeks.

In Group 4, acute gonococcus infection of the epididymis, four were injected. Three did not improve so quickly as usually seen with local treatment. In one case the swelling subsided in two weeks without the return of the discharge from the urethra; this patient received six injections of 4 c.c. each.

In Group 5, acute gonococcus infection of joints, four were injected. Two of them were aspirated and the gonococcus demonstrated. One patient is under treatment at the present time; three did not show much change.

Group 6, chronic gonorrhea of joints, included seven patients. All improved promptly after the first few injections.

The conclusions to be drawn from the above are clear. First, the serum has absolutely no effect on acute gonorrheal infections; second, its value in subacute and chronic cases is very doubtful, although there were a few isolated cases in which the results were somewhat better than we see with local treatment; third, the value of this serum in the treatment of chronic gonorrheal joints is without question.

6. Coley: Am. Jour. Med. Sc., 1906, cxxxi, 375.
7. Knapp, Arnold: Arch. Ophth., 1908, xxxvii, 231.
8. Cutler, C. W.: Tr. Ophth. Section New York Acad. Med., Feb. 19, 1906; Arch. Ophth., 1906, xxxv, 409.
9. Herbst, Robert H.: Serum Treatment of Gonorrhea with Report of Cases, THE JOURNAL A. M. A., May 23, 1908, p. 1678.

STREPTOCOCCIC SERUM

The *Streptococcus pyogenes* is usually employed in the preparation of this serum. The serum is put on the market in hermetically sealed glass bulbs, each containing 10 c.c. The initial dose is 10 to 20 c.c. repeated in twenty-four hours if improvement is not marked.

My thanks are due to those named below for the following brief reports of cases treated with this serum.

Charles S. Bull, New York: Case of deep orbital streptococcic infection. Subconjunctival injection of antistreptococcic serum prepared by the Board of Health of the city of New York. The result was doubtful. There was an "apparent diminution of infiltration and shortening of the period of duration of the acute symptoms."

B. A. Ellis, Los Angeles: Has employed antistreptococcic serum in the streptococcic eye infections with "excellent results."

R. D. Gibson, Youngstown, O.: Has employed antistreptococcic serum in streptococcic eye infections by subcutaneous injections. Results negative.

Allen Greenwood, Boston: Has employed Marmorek's serum injected subcutaneously in large dose. Results were good in cases of erysipelas of the eyelids.

E. R. Lewis, Dubuque, Iowa: Has employed antistreptococcic serum "in probably a hundred or more cases" by deep intramuscular injection "of from 10 to 30 cc. at various intervals." Results negative.

F. T. Rogers, Providence, R. I.: Has used antistreptococcic serum by deep injection. Results negative.

Frank C. Todd, Minneapolis: Has employed the antistreptococcic serum by hypodermic injection. In one case of septicemia due to streptococci, recovery took place, owing, Dr. Todd thinks, to the serum. In other cases the result was negative.

D. N. Dennis, Erie, Pa.: Antistreptococcic serum employed hypodermically in a case of erysipelas and in corneal ulcer due to streptococci. Results very good indeed; the improvement was immediate.

N. L. Wilson, Elizabeth, N. J.: Has employed the antistreptococcic serum in a few cases, injecting hypodermically. Results "not good."

It will be noted that the results obtained by use of the serum have been very variable.

TETANUS ANTITOXIN SERUM

Tetanus antitoxin was first introduced by Behring and Kitasato. It is produced in the same manner as the diphtheria antitoxin and is standardized. This serum is manufactured by a number of municipalities and corporations in the United States and is reliable.

For immunizing purposes the dose is 1,500 units of the antitetanus serum injected intravenously preferably. Subcutaneous injections may be made, but are less effective (Park). For treatment 3,000 to 10,000 units should be injected intravenously to begin with, according to the severity of the case, and repeated every eight to twelve hours until the symptoms abate. The injections should be made at the earliest possible moment, as the degree of efficacy is in inverse proportion to the duration of the infection.

While of comparatively little value in ophthamology because of the rarity of the cases, some cases have been reported.

Bert Ellis, Los Angeles: Has employed the antitetanic serum in three cases, injecting the serum hypodermically. There were two recoveries. Further particulars fail.

E. R. Lewis, Dubuque, Iowa: One severe case of ten days' duration. Antitetanic serum employed. Deep injections at frequent intervals and varying dosage. Result, recovery. Lewis is favorably impressed with the serum.

E. J. Bernstein, Kalamazoo, Mich.: Has employed the antitetanic serum to control infection (immunize) in nine cases of wounds of the eye in which tetanus infection was suspected. Development of tetanus did not take place.

That this serum is of much value in the early treatment of tetanus is conceded by all who have used or studied it.

TYPHOID AND MENINGITIS ANTITOXINS

The serum of Chantemesse[10] (typhoid antitoxin) need not be considered in relation to the eye.

Flexner's serum (meningitis antitoxin) which has proved so beneficial in epidemic cerebrospinal meningitis, will probably never be of value in ocular therapeutics except in connection with its use for the systemic disease. The relatively infrequent affections of the eye due to the meningococcus will mend as the epidemic cerebrospinal disease improves under the use of the serum.

DEUTSCHMANN'S SERUM

Deutschmann's serum[11] is obtained from animals that have been fed on living yeast cells in large quantities. The serum as found on the market is prepared in two forms; one, the true Deutschmann serum with some trikresol added to prevent decomposition, marked "Deutschmann's serum," and one in which the active principle of the serum is precipitated by a method devised by Dr. Enoch of the Reute-Enoch Laboratory, Hamburg, then redissolved in water and designated "Deutschmann's Serum E." Both preparations are put up in bottles of 2 c.c. The latter is about twice the concentration of the former.

Deutschmann asserts that his serum is efficient as an adjuvant against pneumococcic, streptococcic, and staphylococcic infections.

The dose of the serum is to be governed by the effect on the pathologic process; in adults, 2, 4, 6, or even 8 c.c. may be injected twice, thrice, or even more times weekly. The injections are intramuscular, either in the chest or in the abdominal walls.

The following cases of its use have come to my notice:

H. Gifford of Omaha, Neb., reports one case of severe infection of the eye. Deutschmann's serum was injected. Results negative (further particulars fail).

Arnold Knapp of New York employed Deutschmann's serum in one case. Result negative.

This serum is of doubtful value.

CYTOGENIC SERUMS

Cytogenic serums were among the first produced. Von Dungern[12] suggested the possibility of using an epitheliolysin for the destruction of epithelial cancer-cells that were left in the body after the work of the surgeon. These serums all possess hemolytic and hemagglutinative properties and are specific against the cells of the organs from which the inoculation was made.

Working on the principle that "the accepted biologic principle at the present time is that the nucleus is the most important morphologic and physiologic portion of the cell, and hence it follows that its chemical constituents must be those most necessary for nutrition." S. P. Beebe[13] isolated nucleoproteids from various tissues and produced antiserums by their injections into the peritoneal cavity of alien animals, hoping to obtain specific serums. Active serums were produced.

10. Chantemesse: L'hyg. gén. et appliquée, October, 1907.
11. Deutschmann: München. med. Wchnschr., 1907, No. 19.
12. Von Dungern: München. med. Wchnschr., 1899, xlvi, 1228.
13. Beebe, S. P.: Jour. Exper. Med., 1905, p. 733.

At the suggestion of Dr. John Rogers, Beebe[14] endeavored to apply these methods to the thyroid, in the treatment of exophthalmic goiter. Thyroid glands from two human subjects who had died of exophthalmic goiter were first used. The nucleoproteids and the thyreoglobins were extracted from the thyroid glands by Ostwald's method.[15] A mixture of the two proteids was injected into rabbits, and the serum thus obtained was believed to possess both cytolytic and antitoxic properties.

As the difficulties attending the getting of the thyroid gland in cases of exophthalmic goiter would make it impossible to produce sufficient serum to place it on the market, normal human thyroid glands, obtained at autopsy, were employed. The nucleoproteids obtained from this source produced a serum less potent than the first, but sufficiently active. It was found that the best serum was obtained from the sheep.

Since it is possible to obtain serums from diseased glands in small amounts, which are more active than those obtained from normal glands, Rogers[16] proposes that the different serums be designated as "pathologic" and "normal" serums, respectively. Rogers,[17] referring to the results of the therapeutic use of thyroid cytoserum, gives the following statistics:

> Four hundred and eighty cases representing all stages and varieties of thyroidal diseases have thus come under my personal observation for a greater or less length of time, and Dr. Beebe has records of about as many more who have been treated with his laboratory products by many other physicians. In my series approximately 15 per cent. have been cured of all traces of their disease; some 10 per cent. have no abnormal subjective symptoms but still retain signs generally of goiter—less often of exophthalmos or other indication of their disorder noticeable to the trained observer; about 50 per cent. have improved to a greater or less extent, which usually means that after a month or two of treatment, with alleviation of symptoms, the patients have passed from observation and may at present be better or worse than when last seen; about 17 per cent. have failed to show any improvement and 8 per cent. have died from the natural progress of their disorder.

The cytoserum of carcinoma[18] has not been used as yet in carcinoma of the eye.

SYPHILITIC SERUM

Since the application of the method known as complement deviation[19] by Wassermann, Neisser and Bruck[20] to the diagnosis of syphilis and the discovery of the so-called Wassermann reaction, a method for the diagnosis of syphilis has been developed which is undoubtedly of value to ophthalmologists in clearing up the etiology of doubtful eye lesions. In regard to its value Butler,[21] after an exhaustive review of the literature on the subject, sums up as follows:

> The serum [Wassermann] reaction for syphilis is specific. It is found positive in from 90 to 85 per cent. of all cases with syphilitic manifestations. . . . in 50 to 60 per cent. of latent cases . . . in from 70 to 80 per cent. of parasyphilitic diseases. A negative reaction does not positively exclude syphilis.

The Noguchi tests[22] based on the increased globulin content of syphilitic serum has proven to be reliable, and is a relatively simple means of diagnosing syphilis.

A comparison of the results by the Wassermann and the Noguchi tests, made by Noguchi, shows the latter to be of equal if not of greater reliability.

46 East Fifty-seventh Street.

14. Beebe, S. P.: Preparation of a Serum for the Treatment of Exophthalmic Goiter, THE JOURNAL A. M. A., Feb. 17, 1906, xlvi, 484.
15. Ostwald: Virchows Arch. f. path. Anat., 1902, clxix.
16. Rogers, John: The Treatment of Thyroidism by a Specific Serum, THE JOURNAL A. M. A., Sept. 1, 1906, xlvii, 655.
17. Rogers: Ann. Surg., December, 1909.
18. Strauss, S.: The Serum Treatment of Carcinoma, THE JOURNAL A. M. A., Oct. 31, 1908, li, 1488.
19. Bordet and Gengou: Ann. de l'Inst. Pasteur, 1901, xv, 289.
20. Wassermann, Neisser and Bruck: Deutsch. med. Wchnschr., 1906, xxxii, 745.
21. Butler, William J.: Serum Diagnosis of Syphilis, THE JOURNAL A. M. A., Sept. 5, 1908, li, 824.

ABSTRACT OF DISCUSSION

DR. M. WIENER, St. Louis: The subject opens up a broad field for investigation and gives promise of a rich harvest in the domain of ophthalmology. My individual experience in this line has not been large, and has been limited mainly to the tuberculin and Wassermann tests. The latter I have found to be valuable in doubtful cases, especially those in which a positive reaction is obtained. One case that impressed me most forcibly was that of the mother of one of my students, who came to me with a double optic neuritis. I was sure that if the condition were syphilitic it must be accidental. There was a positive Wassermann with an uninterrupted recovery under mercury. I agree with Dr. Weeks' views relative to the tuberculin test, having had two sad experiences from the Calmette test. The Wright treatment is of undoubted good in certain cases. A case of successive crops of multiple, inflamed chalazia was successfully treated by Dr. O. H. Brown by using the opsonic index, after it had resisted every other means at our disposal.

DR. H. GRADLE, Chicago: I wish to describe the use of gonococcus vaccine in a single but striking instance of iritis. The patient had a history of gonorrheal rheumatism with iritis recurring since years in one or both eyes. I had treated him a year previously for a very persistent attack of iritis. The chamber was partially filled with a purulent exudate. According to my experience in his previous case and similar instances I could predict with certainty a severe and tedious course. I gave him 25 millions of stock gonococcus vaccine. The next day I found the exudate diminished and replaced partially by hemorrhage. From that day a rapid recovery ensued, so that in four or five days it cleared up to an extent that had seemed practically impossible. The other eye became involved to a very slight extent, while in other previous attacks the patient had had severe attacks in both. Under injections at weekly intervals he made rapid recovery. Dr. Weeks has referred to my experience with staphylococcus vaccine, particularly in phlyctenular troubles. Of course I refer to the persistent cases in which smears show the presence of staphylococci, which are presumably the (secondary) cause of the prolonged attack; for there is no reason to attribute phlyctenules primarily to staphylococcus infection. I can say with reasonable certainty on account of the uniform results, that in persistent and recurrent phlyctenular conjunctivitis vaccination with staphylococci will produce results. It is only after the second injection that I have observed benefit.

DR. JOHN GREEN, JR., St. Louis: A case which may throw some light on the question of proper dosage of tuberculin in eye diseases is the following: The patient, whom I saw through the courtesy of Dr. Prince of Springfield, Ill., was a young woman who, five years previously, had passed through a severe keratitis and iritis of the left eye. At that time the nature of the trouble was unrecognized and the final outcome was disastrous; a large central opacity of the cornea and nearly complete posterior synechiæ. Vision-hand motion. Some three months prior to coming under my observation there appeared a central keratitis of the right cornea. She consulted Dr. Prince, who recognized the tuberculous nature of the trouble and gave her injections of tuberclin TR, beginning with 0.001 mg. As the patient was coming to St. Louis Dr. Prince referred her to me. I began to use minimal doses, beginning with 0.003 mg., being influenced by Wright's dictum that we should begin with small doses. The dosage

22. Noguchi, H.: Jour. Exper. Med., January, 1909.

was controlled by the opsonic index and was slightly increased, at weekly intervals, up to 0.001 mg. The patient did very well for a time, the peripheral infiltration and the central masses cleared and she went to her home near by. About two months later she returned with a severe exacerbation—a dense infiltration of the cornea—and I began with larger doses, beginning with 0.002 mg., increasing the dose and giving it every second day until she was getting 0.02 mg. Rapid improvement took place and the periphery of the cornea cleared notably.

Unfortunately the destructive process had gone too far to permit of complete clearing. The vision at present is 15/150 with the pupil dilated; much less with the pupil its normal size. This experience indicates that we should not rely too much on the opsonic index as to the matter of dosage; it also bears out von Hippel's contention that relatively large doses are most efficient in tuberculous affections of the eye.

DR. H. GIFFORD, Omaha: As to the value of the dead gonococcus in metastatic gonorrheal ophthalmia, I had a case a short time ago, one of the very few cases that I have ever seen, with severe involvement of the wrists and ankle-joints and very marked metastatic gonorrheal ophthalmia; in fact, I at first thought it was an ordinary gonorrheal ophthalmia, but examination of the secretions showed no germs. The patient was put on doses of 25,000,000 gonococci. He improved very much in twenty-four hours and in twenty-four more I gave another dose and he made a complete, rapid and satisfactory recovery. I shortly afterward tried the same thing in an ordinary infective case with no result.

DR. A. G. BENNETT, Buffalo, N. Y.: In the preliminary letter of inquiry that Dr. Weeks sent around he asked for experience with the pneumococcus serum. He did not mention it in his paper. My own experience has not been satisfactory. I have seen it used, and have used it in three cases. Two patients died and in the other case I could not see any particular improvement.

DR. E. V. L. BROWN, Chicago: Davis asserted two years ago that recurrences were too numerous with von Hippel's treatment. Koch advised him to use the bacillen emulsion, and in 13 cases there were no recurrences. I think that we should use it if we are to use von Hippel's treatment.

DR. JOHN E. WEEKS, New York: In regard to the dose of vaccines I want to urge the necessity of bearing in mind that these are antigens, and that we ought to determine, as far as possible, the condition of the system in regard to the reaction to vaccines. I think that the tendency is to give smaller doses at first and work up until one gets the greatest degree of benefit, and that is one reason why I have spoken of such small doses of gonococcus vaccine. In regard to the pneumococcus serum, I have had but little experience myself, and that has not been satisfactory, nor have I been able to learn of any satisfactory results from treatment with pneumococcus serums, except from Römer himself.

It has been known that tuberculosis of the iris has disappeared under treatment with mercury, with, perhaps, potassium iodid added. I am, therefore, not at all surprised to hear the experience of some surgeons that the tuberculous variety has perhaps also disappeared under mercurial treatment; but that this treatment is not uniformly successful we all know, and that the tuberculin is much better, we are, I think, agreed.

The original tuberculin is not devoid of therapeutic value, but it is less efficient than the emulsion or the filtrate of Denys, because it is subjected to a temperature much higher in its preparation and a portion of the therapeutic value has been destroyed. The original Koch tuberculin as prepared by the Health Board of New York is a good therapeutic tuberculin.

It is not always practicable to employ the opsonic index, because many are without laboratory facilities. Those who have the facilities and who have studied the opsonic index have not obtained the satisfactory results they desired, and, I think, have omitted using it in consequence.

THE SURGICAL TREATMENT OF SEPARATION OF THE RETINA *

CASEY A. WOOD, M.D.
CHICAGO

As the subject of this paper has not been presented to the Section for many years, I thought it might be profitable to discuss what seems to be the most important of the procedures now claiming our attention.

HISTORICAL REVIEW

Whether or not Saint-Yves (1722), Morgagni (1740), Wardrop (1818), and Panizza (1828) fully appreciated the condition later described as amotio sive sublatio retinæ, there can be no doubt that some of the findings referred to by them as hydrops subchorioidealis and hydrops chorioideæ internus were genuine examples of detachment of the retina.

That William Mackenzie[1] was, even during the preophthalmoscopic era, well acquainted with the pupiliary and anatomic appearances of detachment of the retina and the need for surgical interference in its treatment is quite evident from a perusual of his earliest textbook.

He says, *inter alia:*

> It has been ascertained by dissection that a watery fluid is sometimes present in sclerotic staphyloma between the sclerotica and the choroid whereby the latter tunic is pressed inward and the former outward. There are also good grounds for believing that a similar effusion forms occasionally between the choroid and the retina. If the fluid collected in the latter situation is not evacuated by puncturing the staphyloma, it may accumulate to such a degree as to press the retina before it, and having at last produced, by means of its continued pressure, an absorption of the vitreous humor, it will gather the retina into a cord, as sometimes happens in arthritic and in mismanaged cases of syphilitic ophthalmia. A third situation of the hydrophthalmic effusion is between the retina and the hyaloid. Perhaps within the hyaloid is as frequent a seat of the watery effusion as any other; and in this case the structure of the vitreous body is broken up and dissolved.

I would remind you at the outset that retinal separation is not a pathologic entity, but a sign of several quite different diseased conditions. Doubtless, when its pathogenesis is more carefully studied in both its clinical and laboratory aspects, we shall be better able to assign to each case its proper treatment—to attack the problem in a rational rather than in the empirical fashion we are now obliged to adopt.

Before we consider the most effective forms of surgical intervention there are a few preliminary matters to be detailed, an important one being the relations of reattachment of the retina to central and peripheral vision.

The diminished visual vacuity and the lateral defects in the field of vision noticeable to the patient are, as a rule, much improved when the separated membrane is restored to its normal position. Still, this result cannot always be counted on, and its possibility or probability should be considered both by the patient and the surgeon before resorting to operative procedures.

It is not rational to suppose, when the percipient elements of the retina are from any cause seriously damaged, the optic nerve the seat of disease, or the ocular media cloudy, that a reattachment, however perfect, can, *per se,* be of much value to the patient. Such a situa-

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Practical Treatise on the Diseases of the Eye, London, 1830, p. 460.

tion, followed by reattachment, Hirschberg[2] calls "anatomische Heilung," because the result is purely mechanical and has nothing to do with the visual function. The postoperative condition in such cases is paralleled when a mature cataract is extracted in a case of advanced retinitis pigmentosa; the operation may succeed, but the hemeralope is not much better off, *quoad visum,* than he was before the operation. The possible improvement in eyesight may, fortunately, be closely estimated from the history of the case, by testing the projection, by use of the perimeter and by ophthalmoscopy. In any event, it is wise to take a conservative view of the whole situation; it is better to promise too little than too much.

RELAPSES IN THE COURSE OF OPERATIVE TREATMENT

The hopes of both patient and surgeon are often doomed to disappointment because of secondary detachment of the replaced retina. It frequently happens that, after a complete reposition of the separated membrane (with demonstrable increase in both central and peripheral vision lasting for a considerable time) the retina is once more torn away from the chorioid. This accident, due to various causes, has, in some instances, taken place while the patient was lying quietly in bed, under atropin, and wearing a bandage.

Within the past few months I witnessed in my own practice this mournful accident. The patient, a man, aged 55, had recovered almost his whole field for white. He also improved in central vision, from 10/200 and no Jaeger to 20/50 and ability to read coarse print, as the result of three "simple bisections," followed by rest in bed, atropin cycloplegia and pilocarpin sweats. He then "caught cold" and had a sharp attack of acute bronchitis, with severe fits of coughing. In a week, despite all treatment, the detachment, involving the macular region and about one-fourth of the retina in the tempero-inferior quadrants, was as pronounced as before and vision rapidly sank to its former level.

A ray of comfort and hope is thrown on this discouraging fact in the surgical conduct of separated retina in that a number of brilliant and permanent cures have followed persistent treatment and the repetition of operations, in spite of these relapses. In my opinion, it is desirable in the preliminary discussion with the patient of the "pros and cons" of proposed operative measures that this irregular course of the disease be frankly stated. No surgical intervention should be undertaken unless all parties to it are willing to have the patient submit to repeated operations so long as there is a chance of recovery. Deutschmann, for example, has finally succeeded in several cases of relapse, after operating a dozen times or more.

SPONTANEOUS REATTACHMENT OF THE SEPARATED RETINA

Instances of this happy event, which Hirschberg calls "physiologische Heilung," have been reported by a number of observers, although authors greatly vary in estimating their frequency.

Deutschmann, in 300 cases, has seen 3 spontaneous recoveries, or 1 per cent., Hirschberg has seen 4 examples in 338 cases, while Uhthoff reports a much higher proportion—28 cases out of 337—about 8:30 per cent.

Milliken[3] reports a case of detachment of the retina, confined to the macular region, occurring in a fairly healthy man, that resulted in practical recovery without treatment.

H. M. Post[4] gives a history of two cases, in one of which the retina resumed its proper position while the patient was in bed waiting for the removal of a cataract in the other eye. In another patient the reattachment occurred without any known cause and without treatment.

This subject is exhaustively discussed by Müglich,[5] and later by Spümer[6] in the light of case histories from Uhthoff's clinics in Marburg and Breslau. In a number of these cases there remained slight defects in the visual field or small areas of unattached or imperfectly attached retina, not noticed by the patient.

In some instances, the period of observation (less than a year) was not protracted enough to give assurance that a return of the separation might not take place. In my judgment, one may place in the category of physiologic cures quite a number of replacements thought to be due to rest in bed, sweats, dionin, mercurials, iodids and other kinds of medical treatment, not to mention those following minor surgical interferences—subconjunctival injections, cauterization of the sclera, and the like. In any event, Müglich gives the histories of 136 reported cases (1891) of detached retina in which there was complete replacement of the membrane without resort to any surgical treatment whatever, and these figures by no means exhaust the list to the year 1910.

PROGNOSIS IN OPERATIVE TREATMENT

Even under favorable conditions permanent cure of this formidable disease calls for the exercise of much patience and endurance both by the surgeon and the sufferer, for the outcome is at least doubtful. One can, however, give a fairly definite reply to anxious enquirers after fully considering the causes, character, extent, duration and the coincident ocular changes of a particular example of retinal separation.

In a general way it may be said that, as Sattler[7] tersely puts it, the smaller the detachment and the more recent the case the more encouraging the prospect.

Schöler[8] found in his experience that those cases most successfully treated are recent and present a clear vitreous and a bagging of the detached retina, thus indicating the presence of a small quantity of subretinal fluid. He regarded as unfavorable concomitant disease of the media, especially a fluid and turbid vitreous, high myopia, extensive detachment of the retina and marked disease of the chorioid.

In considering the propriety of submitting the patient to surgical measures it must not be forgotten that a committee of the Société Française[9] ended its report on all operations known to the members at that time with these words: "Since we cannot affirm the certainty of any operative measure it may be stated that, as a rule, it is good policy to abstain from any surgical interference in the treatment of detached retina."

However, at the present time, we are able to take a more encouraging view of the situation.

WHAT CONSTITUTES A CURE OF RETINAL DETACHMENT?

In my limited experience of this affection the patient is generally satisfied with useful central vision and the permanent disappearance of the lateral cloud in his visual field, though the reattachment be incomplete. On the other hand, even if there is a satisfactory anatomic

2. Centralbl. f. prakt. Augenh., 1891, p. 168.
3. Western Reserve Med. Jour., September, 1895.
4. Am. Jour. Ophth., May, 1907.
5. Inaug. Diss., Marburg, 1891.
6. Inaug. Diss., Breslau, 1904.
7. Deutsch. med. Wchnschr., 1905, Nos. 1 and 2.
8. Zur operativen Behandlung der Netzhautablösung, Berlin, 1889.
9. Bull. et mém. Soc. française d'opht., 1887, p. 67.

cure from the surgeon's standpoint, the sufferer is, of course, not interested in that fact when his eyesight is not distinctly improved as a result of the treatment.

That a patient with detached retina may be properly referred to as cured, the reattachment should be complete, or so nearly complete that he does not complain of symptoms, and the retina has retained its normal position for at least a year.

SUPPLEMENTARY (NON-OPERATIVE) MEASURES

In all, or nearly all, forms of surgical intervention various kinds of medical treatment are also prescribed. While these operative aids are referred to because of this fact, it is only fair to add that numerous cures have been claimed for one and all of these non-operative measures alone, as well as for almost any two or three of them combined.

Perhaps the most important remedy is the prone position in bed for weeks at a time, varied by daily removals to a couch or lounge. During the period of rest the patient should studiously refrain from any considerable exertion and must avoid straining at stool, sneezing, hawking, laughing and, above all, coughing. During this state of complete relaxation he may, at the discretion of the surgeon, take such supplementary treatment as the case seems to demand.

Many observers combine with this form of rest cure the use of the artificial (Heurteloupe) leech, atropin, simple protective or compression bandages, tinted glasses, a darkened room, laxatives, sudorifics, a restricted diet and the employment of certain drugs said to have a specific effect on the vitreous changes, chorioidal disease, subretinal effusion and other accompaniments of the disease.

The most important of the internal remedies are large doses of potassium iodid, or sodium salicylate (Gifford), combined with sweat baths, with or without pilocarpin.

SIMPLE SCLERAL OR SCLEROCHORIOIDAL PUNCTURES—POSTERIOR SCLEROTOMY

This operation is intended to give vent to the subretinal fluid which, from the earliest years of the ophthalmoscopic era, was known to be an almost constant accompaniment of ablatio retinæ. It was the first rational operation performed for the relief of the disease and was first recommended and practiced by James Ware[10] in 1805. Ware's own words are:

> The operation was attended neither with difficulty nor danger. It consisted simply in the introduction of a common spear-pointed couching needle through the tunica sclerotica, a little further back than the part where it is usually introduced for the purpose of depressing a cataract. As soon as the instrument entered the eye a yellow-colored fluid immediately escaped, sufficient in quantity to wet a common handkerchief quite through. The needle was continued in the eye about a minute, in order to give the fluid a more ready way to come out; and as soon as it was withdrawn the discharge ceased. The tension of the eye was considerably diminished by the operation. A compress dipped in a saturnine lotion was bound on it, and the patient put to bed.

In the modern operation the point of a broad needle or narrow cataract knife is, by the aid of the mirror, passed through the bulbar wall just far enough to tap the postretinal sac. The retina itself is not wounded. The instrument is then withdrawn and in this act turned slightly, to allow a portion of the fluid to drain away. This maneuver may be repeated almost indefinitely at proper intervals, say, of three days or a week. Atropin should be used, and the patient is kept quiet in bed.

10. Chirurgical Observations Relative to the Eye, 1805, ii, 514.

Scleral puncture seems to hold its own to the present time and, alone or in conjunction with other forms of treatment, is practiced more frequently in detached retina than most surgical procedures. Cures following its performance are not uncommon, and, when practiced within proper scleral areas, it is practically devoid of danger.

Greenwood,[11] for example, gives an account of a case treated by this means with improvement that was not, however, permanent.

De Schweinitz has had good results with scleral puncture when it is followed by large (30 mm.) subconjunctival injections of physiologic salt solution and has not found it necessary to increase the strength of the sodium chlorid solution beyond 5 per cent. Subsequent to this treatment the patient should remain in bed.

An instance of cure is reported by W. H. McMullen.[12] The detachment had persisted for eleven months, and after repeated punctures of the sclera, combined with rest in bed and a bandage, the patient entirely recovered.

M. Sachs has made a slight modification in the foregoing, in that he makes a small incision behind and parallel to the equator, and through it passes a sickle-shaped knife into the eye. In withdrawing the blade it makes a decided incision of the intraocular membranes and so increases the area of cicatricial exudation and subsequent adhesion of the wounded tissues.

SCLERAL PUNCTURE WITH INCISION OF THE DETACHED RETINA

As early as 1863 von Graefe[13] advised and practiced discission of the detached retina, an operation which he performed over fifty times. Only in one instance was this procedure followed by the loss of an eye. In about one-half the cases improvement was observed at once, although better vision was claimed for a year and longer in four instances.

DeWecker, Arlt, Bowman and others gave this procedure a fair trial with occasional good results, but it proved, on the whole, to be so unsatisfactory that it was finally abandoned. In more recent times it has received some support and has had a few advocates.

PUNCTURE OF THE EYEBALL WITH THE GALVANOCAUTERY

DeWecker and Masselon[14] were the first to employ this form of treatment, intended to bring about adhesive inflammation between the chorioid and the replaced retina.

The point of the electrocautery, heated almost to whiteness, is cautiously pressed against that (previously denuded) part of the scleral wall corresponding to the detached area and allowed to burn its way into the sac at the site of punctures previously made with the knife. The cautery point is then immediately withdrawn and the eye treated, as after a major operation, with a protective bandage, atropin and rest in bed. If no serious reaction sets in it is repeated as often as necessary to bring about a cure.

J. A. Craig[15] reports a case of retinal separation associated with 8 D. of myopia that seems to warrant the efficacy of this method. Simpler means having failed, scleral puncture was resorted to and reposition of the membrane followed, but became once more detached in four days. Again scleral puncture was tried, reinforced by galvanocautery application to the sclera. The sepa-

11. Ophthalmology, January, 1905.
12. Trans. Ophth. Soc. of the United Kingdom, 1907, xxvii, 124.
13. Arch. f. Ophth., 1863, xv, 3, 85.
14. Ann. d'ocul., 1882, lviii.
15. Brit. Med. Jour., Dec. 20, 1905.

rated retina now remained in position eight days. Again the sclerotic was punctured and the galvanocautery applied more vigorously. After this last treatment there was no relapse and twenty months later vision was 6/6.

Wernicke[16] reports on 422 patients with retinal separation examined in the clinic of Uhthoff. Of this number, 36 patients were cured or greatly relieved; 8 were cured by operative treatment; 10 by rest and other minor measures, and 18 recovered without treatment. Wernicke is much in favor of the galvanocautery, which, he believes, will best secure extensive adhesions of the retina to the chorioid. In the statistics just referred to, of 2 out of 13 cases the retina was entirely reattached by the employment of this measure.

Elschnig[17] gives a complete account of this operation, a part of which I take the liberty of translating.

> The sclerotic is exposed by a meridional incision through the conjunctival tissues overlying the scleral coat which, after bleeding has stopped, is punctured at half a dozen or more points with the red-hot galvanocautery. This minor operation is done under cocain-adrenalin anesthesia, or, in the case of very sensitive patients, subconjunctival cocain injections may be employed. The conjunctival folds of transmission between two of the straight muscles are taken up with a fixation forceps and slit right to the corneal margin with scissors. The underlying fibers of Tenon's capsule are also cut through, thus making a wound 8 to 12 mm. long.

Sattler, having placed the cold cautery point in the wound, afterward turns on the current until the cauterization is completed.

If, on removing the cautery-point from the wound, it is found adherent to the tissues, the current should be again applied, when it is more easily removed from the charred tissues.

The edges of the conjunctival incision are now brought together with silk or catgut, the wound is dressed and a bandage applied. The sutures may be removed after two days.

The cauterization may be repeated as soon as the eye is once more free of irritation. If, however, the application is too frequently made, there is some danger of one of the straight muscles becoming attached, by scar tissue, to Tenon's capsule.

There can be no doubt, as Wernicke and others have shown, that this method does induce marked inflammatory adhesions of the retina to the chorioid.

H. Dor does not like the electropuncture, but prefers the actual cautery in the form of Guersant's needle, because that instrument is provided with a "stop" which prevents too deep perforation of the sclera. This needle is heated red-hot in an alcohol flame and applied to the conjunctiva. The objection to this method is that it brings about a marked contraction of the ocular conjunctiva, as well as cicatricial adhesions of the overlying tissues to the sclerotic.

Elschnig considers the principal value of all these local cauterizations to lie in the fact that the sclera is contracted by the formation of scar tissue in it through these burns, so that the size of the eyeball itself is reduced. In other words, galvanic and other forms of cautery bring about the same result that one gets in Mueller's operation. He has employed the cautery in connection with scleral puncture and believes that, in this way, he obtains better results than ordinarily flow from either method alone.

H. Dor[18] reports over 40 cases of retinal detachment in which he makes use of a combined treatment, employing the artificial leech, punctiform cauterization and the injection into Tenon's capsule of 10 per cent. sodium chlorid solution. Seven of the patients were decidedly improved, 5 satisfactorily improved and in 3 there was small improvement. In 10 cases there was complete failure.

16. Klin. Monatsbl. f. Augenh., February-March, 1906.
17. Czermak's augenärztliche Operationen, Ed. 2.
18. Bull. de la Soc. Franç., 1907.

SUBCONJUNCTIVAL INJECTIONS

The *modus operandi* of subconjunctival injections in detached retina is not fully understood. Whether they act (in virtue of the local irritation) by stimulating absorption of the subretinal fluid, at the same time increasing the watery contents of the hyaloid cavity, or whether the process of osmosis (exosmosis of the subretinal fluid associated with endosmosis of the subconjunctival solution and pouring out of serum from the ciliary vessels into the vitreous chamber) best accounts for the beneficial results remains to be determined.

It may be mentioned, in passing, that dionin, inasmuch as it acts in a manner similar to saline subconjunctival injections, is indicated as a substitute for these agents in the treatment of displaced retina and, in some hands, appears to be of some value.

DeWecker,[19] probably influenced by Raehlmann's[20] earlier work, was the first to use this remedy extensively. He injected at first, without much effect, simple salt solution into Tenon's capsule, but later[21] added small proportions of gelatin (3 per cent.) to increase the local irritation and consequent diapedesis of the intraocular fluids. He found the effect on the detachment more marked than before and noticed that the disease of the vitreous was distinctly improved.

In 1896 Lodato[22] gave a favorable account of the use of sodium chlorid injections in 15 cases of separation of the retina. In 12 of these there was almost total reposition of the membrane; in two only was there complete increase in the central acuity.

During the following two or three years, in consequence of continued favorable reports, there was a widespread employment of this remedy by Gotti,[23] Mazzoli,[24] Dor, Sr.,[25] and others.

Dianoux prefers a mixture of 1 per cent. sodium chlorid and 4 per cent. cane sugar in distilled water. Of this, 4 or 5 c.c. are injected into Tenon's capsule on the first, second and fifth day of the treatment. He has found a series of ten such injections to be effective in detached retina.

Dor, Sr., at the Ninth International Ophthalmological Congress, reported the results of treatment of 21 patients. Of these, 14 were cured or much improved, several of them having no relapse after four years. His methods included chiefly injections into Tenon's capsule of 20 to 30 per cent. solutions of salt, the application of the Heurteloupe leech to the temple, thermocautery puncture of the sclera at the site of the detachment, a compression bandage and rest in bed.

Marple[26] has used subconjunctival medication in three cases, but without permanent improvement. He began with 5 per cent. sodium chlorid and gradually increased it to 25 per cent., although the stronger solutions were extremely painful.

Guilbert[27] tried in three cases the serum-gelatin of deWecker and the serum of Trunecek with one cure and temporary improvement in the other two cases.

19. Traité complet d'Ophtalmologie, Paris, 1887.
20. Graefe's Arch. f. Ophthal., 1876, xxii.
21. Ophth. Klinik, 1899, No. 11.
22. Ann. di ottal., 1896, iv.
23. Ancora sulla cura dei distachi della retina, Bologna, 1898.
24. Arch. di ottal., 1900, vii.
25. Ztschr. f. Augenh., Sup. 2, 1899.
26. Rep. New York Eye and Ear Infirmary, 1904.
27. Clinique Opht., Sept. 10, 1904.

A. Maitland Ramsay[28] has taken all his cases of this condition occurring in hospital practice over a period of four years and reported on the results of treatment by subconjunctival saline injections. The exact nature of the saline varied in different cases, but the solution ordinarily used was from 5 to 20 minims of 1 in 2,000 bicyanid of mercury with 8 per cent. chemically pure sodium chlorid. Dionin was occasionally added to the injection. Ramsay lays great stress on the need of attention in every way to the patient's general health, and especially to the state of the bowels, during his period in bed.

The average number of injections was five, and the average duration of treatment one month, but prolongation of the period in bed is probably beneficial if the case is one which is improving. On the other hand, if, after from 14 to 21 days, there are no signs of improvement, the case may be considered incurable. There were 50 patients treated by this author, of whom 27 received no benefit whatever. Of the remaining 23, 10 showed very decided improvement. Of these 10, 5 afterward relapsed, the shortest period being 2 weeks and the longest 4 years after conclusion of treatment; of the remaining 5, 3 were satisfactory after one year and 2 were lost sight of. The other 13 of the benefited patients showed moderate improvement; some of them relapsed. Ramsay concludes that the favorable cases are few, the unfavorable many; but, however hopeless the latter may at first seem, it is always well, before coming to the conclusion that nothing can be done, to try the effect of such simple treatment. It can at least do no harm.

Ramsay gives the following as the formulas of the various fluids used by him in the subconjunctival treatment of amotio retinæ:

1

R.

Sodii chloridi (chemically pure)	8 per cent.
Sol. hydrarg. bicyanid.	1 in 2000

Misce.

2

R.

Dionin	1 per cent.
Sodii chloridi (chemically pure)	8 per cent.
Sol. hydrarg. bicyanid.	1 in 2000

Misce.

3—DOR'S FLUID

R.	gm.
Sodii chloridi	5
Sodii carbonatis	40
Sodii sulphatis	40
Sodii phosphatis	10
Potassii sulphatis	40
Aquæ destillatæ, ad	20

Misce.

Staerkle[29] publishes the outcome of subconjunctival injections in 23 instances, with three cures. His conclusions touching this form of treatment are as follows:

1. The subconjunctival injection of common salt solution forms a harmless and almost painless means of stimulating the absorption of pathologic exudates within the eye.

2. Up to a certain point the stronger the solution the greater the effect. The writer employed 3 strengths only, 2 per cent., 4 per cent., and 10 per cent., and found these in every way adequate.

3. On the whole, the improvement in the anatomic conditions as well as in the visual fields and central vision, was more marked as time passed and the injections were continued.

4. The injections had a greater influence on recent, partial detachments than on long-standing and widespread examples of separation of the retina. Intermediate forms were variously affected by the treatment.

28. Ophthalmoscope, November, 1907.
29. Inaug. Diss., Basel, 1900.

I may add my own experience of subconjunctival injections of 10 per cent. salt solutions in retinal detachment; it is that, as an aid to more serious operative intervention, they are distinctly valuable and deserve a permanent place in our armamentarium.

DEUTSCHMANN'S OPERATIONS

Bisection, With and Without the Intravitreous Injection of Sterile Animal Vitreous.—In 1895 R. Deutschmann[30] of Hamburg first published his classic description of two operations for which he still claims results unattained by any other form of treatment. He is opposed to waiting until non-operative measures have been tried, but advises us to proceed at once to the more effective employment of surgical intervention. The simpler bisection (*"Durchschneidung"*) method he regards as especially valuable in the more acute or recent cases; the combined procedure he reserves for the advanced and less hopeful forms of the disease. Deutschmann asserts that bisection reduces the tension on the retina, which in his experience can be so marked that it is impossible to reattach it without making one or several incisions through the vitreous bands. He evacuates the retinal and preretinal fluids and tries to produce small inflammatory adhesions between chorioid and retina. With the injection of animal vitreous into the posterior chamber he produces a mechanical pressure on the detached retina against the chorioid, and a welding of both membranes on an inflammatory basis, with simultaneous refilling of the eyeball. Relapses may occur with either or both methods, but under these circumstances he repeats the operations in an attempt to regain what has been lost. The author refers to the favorable statistics of Horstmann (6.66 per cent. of cures) and Uhthoff (7.50 per cent.) as the result of operative interference, but believes that much better success can be attained by his methods. As evidence he gives his own experience. To July 1, 1909, he has operated on 267 patients with retinal detachment. Of these he cured 70, or 26.1 per cent., improved 94, or 35.2 per cent., failed in 103, or 38.7 per cent. From these totals, however, he subtracts a number of patients on whom the operation was performed as an experiment, without the least chance of recovery of sight (the patients fully understanding the situation), with these results: cured 31.1 per cent., improved 41.3 per cent., not cured 27.6 per cent.

Bisection of the Vitreous and Retina.—This operation[31] is never employed in cases in which the detachment is above the equator; when one has to deal with such it is better to wait, without treating the patient, until the subretinal fluid has gravitated downward. After thorough disinfection and cocainization a two-edged linear knife, about the width of a medium-sized Graefe knife, is entered at a tangent to the globe (through conjunctiva and sclera well back of the ciliary region), passed quickly forward and then downward and backward, sweeping toward a counter-puncture at the other extremity of the ocular diameter, so as to cut in two as much as possible of the vitreous chamber without wounding any surgically important structure. The knife is then drawn out as quickly as it was introduced, being turned a little on its axis in order to allow the subretinal as well as some of the preretinal fluid to escape. This maneuver may be repeated as often as twenty times or more, with sufficiently long intervals between successive operations to permit the eye to recover from the reaction

30. Deutsch. med. Wchnschr., 1895, p. 345; and Beitr. z. Augenh., 1895, xx.
31. Beitr. z. Augenh., 1904, No. 59; Ophthalmoscope, August, 1907, p. 410, and November, 1909, p. 737.

which, however, is generally small or *nil*. Of course, this interval must be a longer one if one of the larger retinal vessels has been wounded, or any other unforeseen accident should occur. A celluloid shield should then be applied to both eyes, or if a bandage be used it should be a loose one for the first 24 hours. After the first day only the eye operated on is covered, and it must be kept under the influence of atropin during the whole period. The patient should be kept in bed 7 or 8 days after each operation and results watched with the ophthalmoscope.

As a rule, when these directions are strictly followed under careful asepsis the operation is without danger to the eye.

Combined Bisection and Intravitreous Injection of Animal Vitreous.—Deutschmann reserves this operation for those cases in which vision has sunk very low or in which other means of restoring sight have failed. He says that, while one must not expect too much from it, yet by its use he has been able to save a small percentage of eyes in desperate cases. He also claims that, carried out under full cocainization and with strict aseptic precautions, it does not endanger either the eye operated on or the fellow eye.

The instrument employed by Deutschmann (glass syringe) allow only an advance of its piston. This arrangement is provided so that no deleterious suction can be practiced on the contents of the eye should the finger by chance be removed from the piston end. As nozzle for the syringe one may employ either a platinum-iridium canula or a double-edged knife canula. Deutschmann now employs ready-to-use sterilized vitreous body of absolutely fresh calf's eye, hermetically sealed in glass tubes. These are supplied by Dr. W. Mielck, Dammthor-Strasse, Hamburg. This chemist supplies two kinds of calf's vitreous: No. 1 is made by the filtration of freshly-boiled vitreous body, afterward resterilized by boiling in hermetically sealed glass tubes. This preparation has a weaker action than No. 2, which is composed of fresh vitreous body inspissated at 40 C. *in vacuo*, and the residum taken up with physiologic salt solution—sterilized by boiling—so that the component parts of normal, but concentrated vitreous body are contained in it.

The technic of this intravitreous operation, as given by the author, is as follows:

> To bring the retina once more as close as possible to the chorioid by means of the pressure of the injected animal vitreous it is, of course, necessary to get rid of the subretinal fluid. If one uses the point of the ordinary platinum-iridium canula then the procedure is as follows: The syringe, filled with the animal vitreous, is best introduced in the region of the ora serrata, somewhat outward and downward. It is given to the assistant to hold while the operator, with the double-edged linear knife makes the usual simple bisection downward. After the completion of this maneuver, he, with the syringe, injects into the eye very slowly some of the contents of the barrel. It is generally sufficient to push forward the piston from 1.50 to 2 divisions, according to the consistency of the eye. Then the syringe point is withdrawn and the puncture closed with toothed forceps for some minutes, that none of the fluid injected may escape from the eye. To use the syringe with the canula-knife, omit the usual bisection and insert the knife point of the syringe, filled with animal vitreous, in exactly the same way as is directed in the bisection operation with the double-edged knife. One can introduce the canula-knife up to the point of the counter-puncture but in all cases avoid moving the point from side to side.
>
> On the introduction of the syringe the subretinal fluid flows out. Then one immediately presses the syringe piston forward, thus making the injection. The point of entrance is in this case also held together with forceps after the removal of the syringe.
>
> After the operation, both eyes are lightly bandaged for twenty-four hours, then one eye only. Further measures depend on the reaction shown by the eye. This reaction, again, is dependent on the concentration of the animal vitreous used. "I must here state, to spare my colleagues every unpleasant experience, that they must begin with the weaker preparation, and, since the operation can with perfect safety be repeated several times, gradually go on to stronger ones."
>
> The ocular tension is generally reduced after these operations.
>
> For the first injection one should dilute vitreous preparation No. 1 with equal parts of sterilized physiologic salt solution; for the second use the solution pure, and so on. Inflammatory symptoms, such as may appear at various periods up to the eighth day after the operations, can, as a rule, be easily controlled by atropin and hot applications. "If increase of tension sets in, one should at first wait quietly; only when the pain becomes very severe and perception of light is somewhat worse under the influence of the heightened tension should one interfere and do another simple bisection." Under ordinary conditions, however, it should always be borne in mind that after every injection the vitreous body will become more or less cloudy. This translucency gradually clears up completely. Even if it assumes a yellowish, abscess-like appearance, it becomes clear and normally transparent again in the course of a few months. It is only now and then necessary to assist absorption by hot applications or by an occasional salt injection.

The author's latest statistics[32] report 68 eyes treated by the use of animal vitreous. With repeated injections he cured 3 patients, improved 26, failed in 38, and 1 is still under treatment.

Since the publication of Deutschmann's first paper I have done the bisection operation on 10 eyes in 9 cases. Of these, there was complete reattachment of the retina with restitution of useful vision (Jaeger 1 and 20/30) in one instance. This improvement continued for over three years—as long as the patient was under my observation. In two others decided improvement of central vision followed, but with incomplete reattachment of the retina. In the others there was little or no improvement.

I cannot understand why Deutschmann refrains from giving patients the benefit of the milder, non-operative forms of treatment (known to bring about occasional cures) while waiting for the gravitation of the subretinal fluid to lower levels. When the detachment in the upper quadrants is not due to malignant tumor or other incurable cause I am in the habit of making a thorough inquiry into the probable cause of the separation, and with rest in bed, pilocarpin sweats, iodids, subconjunctival injections and the use of other means, more or less rational, endeavor to bring about some alleviation of the patient's symptoms.

MUELLER'S OPERATION

Resection of a Portion of the Scleral Wall.—The originator of this operation, Leopold Mueller,[33] was led to perform it because of his belief that many cases of detachment are due to disproportion between the shrunken or shrinking vitreous humor and the ocular envelopes. He proposes a rather formidable but, he claims, successful remedy for this condition, no less than an attempt to reduce the size of the eyeball. Since it is impossible to attain asepsis of the conjunctiva, Mueller operates on the globe behind the equator.

Krönlein's resection of the outer orbital wall forms the first stage of this new operation. This preliminary being accomplished, the temporal aspect of the eyeball is thor-

32. Ophthalmoscope, November, 1909, p. 739.
33. Klin. Monatsbl. f. Augenh., May-June, 1903, p. 459.

oughly exposed. The external rectus is then divided, the cut ends being secured by fine sutures, so that they may be later reunited. The operator then carefully and slowly excises with a sharp scalpel a biconvex piece of sclera 20 mm. long (with its length parallel to the equator) and 8 to 10 mm. wide, in such a manner that its anterior edge lies 1 or 2 mm. behind the insertion of the external rectus. Its posterior margin should correspond to the equator. The edges of the scleral wound are now brought together by five small stitches. In the performance of this operation care must be taken not to injure the chorioid, but, just before tying the scleral sutures, the subretinal sac is tapped with a narrow knife and some of the fluid allowed to escape. The cut ends of the externus are then carefully approximated and the bony plate, skin, etc., readjusted. When the wound is closed the whole eyeball is smaller than before.

Mueller reports 3 cases in which he had done the operation, after which the separated membranes resumed and held the proper position for 10, 11 and 15 months, respectively.

It is, of course, too soon to pass judgment on this operation. Perhaps, in the majority of cases—those associated with the enlarged globe of extreme myopia—it may prove more valuable than any other operative procedure.

In this paper I have considered only those surgical methods that, in my experience, are most likely to be effective in this distressing condition. Such measures as iridectomy, electrolysis of the subretinal fluid, Schöler's operation of the intravitreous injection of iodin, injection of air into the hyaloid cavity, laceration of the retina, and many others are of historical interest chiefly. None of them is, in my opinion, so valuable as the procedures just detailed.

CONCLUSIONS

One who has made a study of the observations of others in the surgical treatment of detached retina and has added to it his own experience—though that may be limited—will, I think, come to these conclusions:

1. Inasmuch as separation of the retina is not a distinct disease but merely one sign—albeit a very important one—of several different affections, it is not to be expected that it is to be cured or much relieved in every instance by some particular operation. The "one-disease-one-operation" idea can have no place here.

2. A large percentage of retinal repositions, including an unknown proportion of those that follow operative measures, belong to the class of spontaneous cures. In such cases relief may have been assisted, hastened or rendered more or less permanent by the remedies exhibited, but the probability is that the patients would have recovered in any event.

3. So far as prognosis is concerned, the more hopeful cases are the recent, limited varieties—those produced by traumatism, postretinal hemorrhage and the like—as well as those resulting from removable causes. *Per contra,* old, extensive detachments, especially when associated with marked degeneration of the retina, vitreous and chorioid, are not likely to get well under any forms of treatment. A long-separated, starved retina rarely regains its lost functions.

4. Recurrence of the detachment forms a disappointing feature in the treatment of the disease, and this fact should be considered by both patient and surgeon when the subject of operation is broached. On the other hand, it has been abundantly demonstrated that patients with separated retina have recovered after several relapses and after having submitted to many operations.

5. No patient should be regarded as permanently cured until at least a year after the replacement of the detached membrane. It is true that relapses are recorded after an interval of several years, but they are unusual.

6. When a patient presents himself it is best to try for, say, a month—indefinitely as long as improvement continues—non-operative measures. A thorough study should be made of the case to determine, if possible, the cause of the detachment, that it may be treated *secundum artem* and, perhaps, removed. With this causal treatment give subconjunctival injections, instil atropin and keep the patient in bed. Pilocarpin sweats, with iodids or sodium salicylate, are also generally indicated.

7. Failing to improve vision or to replace the separated retina by milder means, resort should be had to operation, and the question of the best operation for the case in hand at once arises. We know that the function of the retina gradually weakens the longer it is displaced; consequently the sooner one makes a choice of operation the better.

8. Deutschmann advises against his operation as long as the postretinal fluid is held within the upper quadrants of the globe. If we are debarred by this circumstance from the use of his methods, there can be no objection to the employment of scleral puncture, combined with punctiform cautery of the denuded sclera over the site of the detachment. Why should we wait until the retina is further detached and degenerated?

9. In those cases in which the sac occupies, as it generally does, the lower aspect of the hyaloid chamber, Deutschmann's method of bisection should be the operation of election, whether or not there be evident rents in the retina or visible fibrillæ in the vitreous.

10. Two weeks after an intrabulbar operation a careful examination of the eye should be made—with the electric ophthalmoscope (so that the patient may keep the prone position), hand perimeter, ward charts, etc.—to decide if improvement has taken place in the local conditions as well as in central and peripheral vision.

11. Assuming the eye to have recovered from any operative measure, i. e., to be free from either intraocular or extraocular inflammation, the same or another operation may be done in from three to six weeks' time.

12. In unpromising cases Deutschmann's intraocular injections of animal vitreous is in order, although Mueller's exsection of the sclera seems a rational, though formidable procedure, which an improved technic and a wider experience may yet demonstrate to be of great value in the conduct of this extremely serious condition.

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ABSTRACT OF DISCUSSION

DR. L. WEBSTER FOX, Philadelphia: As Dr. Wood has mentioned, the retina is normally attached to the chorioid only at the optic nerve and ora serrata, being kept in place by the internal pressure of the normal vitreous. Separation is therefore possible only when this pressure is reduced by disease or traumatism, the force acting behind the retina becoming greater than the vitreous pressure, thus producing traction on the retina, or, in other words, separation. Frequently this shrinking of the vitreous tears the retina and permits some of the fluid contents in the vitreous space to find its way behind the retina and assist in the general separation which follows injuries or degeneration of the vitreous. As we all know, the ordinary treatment—rest in bed, potassium iodid, mercury, pilocarpin and electric light sweats, as well as conjunctival injections—forms one of the most unsatisfactory chapters in ocular therapeutics. I have found that the most satisfactory results obtained have been in those patients in whom I have made a puncture of the sclera beneath

the curtain and have thus withdrawn the subretinal fluid. This puncture is made with the broad knife-needle. The incision is about three lines long and parallel with the scleral fibers, through the conjunctiva, which is made taut by the excessive rotation of the eyeball. When the eyeball rotates back into place the scleral wound is closed by the slipping back of the conjunctiva.

I am convinced that this operative procedure, which may be performed four or five times on the same eye, is a safe one. I consider Deutschmann's procedure much more difficult to carry out; therefore, the simpler method should be given the preference. The younger the patient (10 to 22) the more favorable the outcome. Beyond the age of 40 the prognosis is unfavorable under any form of treatment, surgical or medical, but still one should make an effort to do one's part, and where the subconjunctival treatment as outlined by Ramsey fails, the operative method should be carried out.

DR. OSCAR DODD, Chicago: Several years ago I was fortunate enough to secure a complete reattachment of the retina in a case by means of the Deutschmann operation, repeated twice, together with complete rest of the patient in bed. I believe the operation is well worth trial, although since that time I have used it in a great many cases, and while I have had some improvement, I have been unable to obtain perfect reattachment which has remained. With the simple puncture of the sclera, which Dr. Fox has described, the puncture with the galvanocautery, etc., I have been unable to get as good results as from the Deutschmann operation. There is one point in the treatment, however, which I think should be considered, and that is the extent to which your patient will cooperate. I find it difficult to get the patient to remain quiet in bed, and I believe my success in one case and improvement in several others have been largely due to the patient maintaining complete rest until adhesion between the retina and chorioid took place. I have never seen any benefit from the injections of salt solution, except as combined with puncture, and I think the two essentials in the treatment are the removal of the subretinal fluid and rest, allowing the hemorrhage or plastic exudate which is thrown out between the retina and chorioid to form an adhesion between them.

DR. H. GIFFORD, Omaha, Neb.: I never could see the sense of the Deutschmann operation. It simply makes a scleral puncture and two holes in the retina. What we want to do is to let out the fluid behind the retina. That is what these holes in the retina will not do. All the good it does is simply from the scleral puncture, except in cases in which we can see distinct bands in the vitreous; then cutting these may possibly accomplish something. There is another objection to the Deutschmann operation. He says, don't do this operation until the detachment has settled to the bottom of the vitreous. Why should we wait until it settles to the bottom when we know that the sooner it is reapplied the better? In the few cases of cures I have seen the detachment has been in the upper part. When we know that the best chance to cure the patient is to let the fluid out, why should we not do this at once instead of trying rest alone for a month? It seems to me not enough attention has been paid to late detachments. I have seen two cases in which the detachment occurred four years after the injury. In one of these cases I examined the eye within a half hour of the injury, and found no sign of detachment. The patient had normal vision for four years and then had a detachment and he has not had much sight in that eye since. With regard to burning the sclera, I have never seen any reason for simply burning the sclera on the outside with the hope that it is going to draw the retina back into place. If you are going to do anything with the cautery, puncture the sclera with it.

DR. S. L. ZIEGLER, Philadelphia: I wish to add my experience in the use of scleral puncture for cases of detached retina, which I perform a little differently from the methods that have been mentioned. In a few cases I have been very successful, in some moderately so, while others have been failures. I recall one case in particular in which vision was practically *nil*, and in which to-day the vision has risen almost to normal. For three years the patient has been able to do his regular work, and in every way this may be classed as a perfect recovery. The technic I employ requires the use of the von Graefe cataract knife instead of the double-edged broad needle which Dr. Fox prefers. I make the scleral puncture about 6 mm. from the limbus, midway between the recti muscles, with the back of the knife toward the cornea, and penetrate just deep enough to enter the space between the retina and the sclera. I then rotate the knife sufficiently to allow the subretinal fluid to escape. When this has drained out I rotate the knife-blade back to the line of primary incision, and with a quick thrust pass the knife through the retina. Having gone through the retina I again rotate the knife at right angles and while drawing the knife out of the wound turn the edge of the blade back against the retina, so that the incision in the retina is made larger than the incision in the sclera. In this way I secure a double incision, in the shape of a T, which gapes sufficiently to permit the subsequent accumulation of subretinal fluid to escape and to allow the weight of the vitreous to press the retina against the sclera and to keep it approximated until union occurs.

DR. HIRAM WOODS, Baltimore: The term "cure" seems to need exact definition. In one case seen by me there was spontaneous return of the detachment, without treatment; in a second there was reattachment after operation by puncture, and in a third after two months in bed with treatment by diaphoresis. One of the patients remained well, so far as the detachment was concerned, for eighteen months, and another for three years. Only in the third case mentioned was there evidence of improved vision. The upper half of the retina was detached and central vision was lost. After reattachment central vision became 20-30, but vision in the lower field was never regained. The loss of central vision I believe to have been due to the separated retina falling over the fovea, rather than to foveal detachment. I have never seen the separated retina regain vision.

DR. ALLEN GREENWOOD, Boston: I think in all these questions of the operative treatment of separation of the retina, and in all the cases reported by the different men, it is fair that the underlying conditions be told us in every case, because the cause of separation varies much. Suppose the patient has a myopia of 20 D. The chances of operative cure are practically *nil*. If the myopia is not too high, operative interference gives us the best chance. I think operative treatment in simple cases of traumatic detachment of the retina is usually not necessary. It is so in cases of separation from edema filling beneath the retina. We all know that entire recovery sometimes occurs, particularly in cases occurring in pregnancy, and I think in reporting cures the underlying condition should always be mentioned.

DR. CASEY WOOD, Chicago: As to Dr. Fox's operation, and preliminary to my discussion of what Dr. Fox has said, let me state that as a rule the detached retina tends to replace itself without treatment. It would go back if there were not something to drag or hold it away from the chorioid. That is especially true of recent cases and is the reason why simple puncture, with a Graefe knife or with the broad needle, sometimes induces a reattachment of the retina. Letting out the post-retinal fluid, particularly if there are rents in the retina itself, may assist in bringing about a cure. If there is no rent or opening in the retina you will easily see how impossible is a reposition of the separated membrane, because there could be no free flow of fluid through the membrane. One of the purposes of the Deutschmann detachment operation is to insure such openings in the retina. In passing the knife a section is made not only of the retina but through the fibrillæ of the shrinking vitreous, the contraction of which pulls the retina away from its original bed. I agree that simple puncture cures sometimes.

Dr. Dodd speaks of the difficulty of controlling patients in the treatment of this disease. In my judgment, the patient should remain in the hospital while under the surgeon's care. Home treatment is less likely to have good results. Not only should the patient remain in bed, but I should like to say, in reply to Dr. Gifford, that I do not believe it is justifiable to do even such a simple operation as simple puncture when one may more certainly cure the patient through "bisection." At

the same time I would try the non-operative methods before proceeding to this more severe procedure.

In Dr. Ziegler's operation, which I believe is an advance on simple puncture, he has only one point of retinal puncture and consequently only one of possible reattachment. The Deutschmann procedure gives two, and for that reason the latter is the better. In speaking of cure, I referred to the continuous reattachment of the retina after an interval of at least a year.

If Dr. Woods had read my paper he would see that I referred to the dictum of Hirschberg, that one may secure a reattachment of the separated retina with a return of vision or an improvement in both central and lateral acuity—i. e., a "physiologic cure;" or the detached retina may resume its original position without visual improvement—"anatomic cure."

ALCOHOL AND NEPHRITIS

A CLINICAL STUDY OF 460 CASES OF CHRONIC ALCOHOLISM *

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Amicus Socrates, sed magis amica veritas

Few problems in medicine are attended with so much confusion as the pharmacology of alcohol. Being a narcotic, a stimulant and a food, its uses are so manifold, and the dosage so variable that the study of its effects on the human body are exceedingly difficult of interpretation. Writers and teaching physicians have for decades upheld the view that chronic alcoholism is one of the chief causes of nephritis. This generally accepted view could not logically be questioned seriously until a fairly large number of carefully gathered clinical data had been furnished by a general practitioner. Clinical material from hospitals constitutes an unfair collection of patients, because they are either a decidedly inferior lot socially, or too superior, and therefore inaccessible for careful study.

Animal experiments with alcohol are also of little practical value, on account of the complexity of the technic, and the multitude of the sources of error. General practice, in my opinion, furnishes the best and the most nearly normal material for the study of alcoholism. In order to know our patients we must live among them. One may thus know one's tippling neighbor for several years before one is called on to treat him; and one is surprised to find that the much-expected nephritis is absent.

It is just this class of patients that directed my attention to the subject of alcoholism and nephritis. On tabulating the clinical findings, several interesting facts revealed themselves and the interpretation of these data will be the object of this paper. With this in view, I shall reproduce a synopsis of my own statistics from my own cases of chronic alcoholism. It is obviously beyond the scope of this paper to enter into a full discussion of alcoholism.

The following statistics are gathered from 150 patients treated by myself at the Iowa State Inebriate Hospital, in 1902, and from 311 cases in my own practice, from October, 1904, to June 1, 1910. A detailed comparison of these classes of patients would be too lengthy and will be the basis of a future publication. Suffice it for the present to study these collective tabulations and to submit my deductions therefrom.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

METHOD OF STUDY AND RESULTS

The action of chronic alcoholic intoxication was studied under five heads, namely, the general nervous system, the gastro-intestinal system, the cardiovascular system, the lungs, and the kidneys. A comparison of the effects of repeated alcoholic excesses on these several tissues will demonstrate, graphically and conclusively, the varying frequency and intensity of psychic or somatic symptoms, such as are produced in chronic alcoholism. To study these facts individually and to judge them collectively is, in my opinion, a logical procedure.

1. Neuropathic and psychopathic lesions were found in nearly all chronic alcoholics, namely, in 92.5 per cent. of 461 cases. This once more confirms the teaching of pharmacologists that alcohol is essentially a narcotic; that a drinker without some nervous lesion is an exception. The trained clinician will seldom fail to discover morbid alterations in the central or peripheral nervous system, or both. Nerve cells contain more lipoid substances and lecithins than any other cells; hence the selective action of all narcotics on the neurons.

2. The effects of chronic alcoholic abuse on the gastro-intestinal systems are marked and striking. Pharyngitis, gastritis and hepatic disorders occurred in a fairly even proportion among drinkers, namely, to the extent of 82.7 per cent. of 461 cases. These morbid changes are, in my opinion, toxic in nature and not irritative from local action. The cells of the alimentary tract subserve metabolism primarily and mainly. They break up complex molecules into single ones, they come into close and prolonged contact with them, and thereby suffer damage. This explains the fact that the pharynx, the stomach and the liver suffer much more in chronic alcoholism than the eliminating organs, such as the kidneys and the lungs.

3. There are no cardiovascular symptoms which might be termed characteristic of chronic alcoholism, unless it be the peculiar fetal qualities of the heart-sounds which we know as embryocardia. I find this very frequent among drinkers, but I can offer only a tentative explanation for it, namely, the following: Embryocardia can occur only with low-tension blood-pressure, and in the absence of renal insufficiency. Hence it might be considered as a useful condition of no pathologic significance at all. That alcohol is a sclerogenic pharmakon and productive of arteriosclerosis with its usual train of symptoms may be a fact, but its demonstration would be difficult and is really not shown by my tabulations. There were cardiovascular changes, such as myocarditis, aortitis, valvular heart disease and arterior sclerosis in chronic alcoholics in 54.3 per cent. of 461 cases, but this by no means constitutes a proof of the causal relation between these lesions and the abuse of liquors. I believe it, nevertheless, to be good reasoning to ascribe the bulk of cardiovascular symptoms to the sclerogenic action of alcohol, while abstaining from an interpretation of its pathogenesis.

4. That excessive drinking is in itself injurious to the lungs cannot be proved from my statistics. These patients are usually hard workers, with careless habits and deficient protection against climatic changes. Cough is frequent among drinkers and in about 30 per cent. of all my cases it is the only ailment for which they consult the physician. In about half of these it is due to pharyngeal irritation and occurs without any pulmonary changes. The lungs excrete all narcotics, especially ether, chloroform and alcohol. They do not appear to suffer from the mere elimination of these volatile substances as such, but rather from the concomitant, de-

pressing and deteriorating systemic action. Indeed, there seems to be no limit to the frequency with which any cell, single or organized, can recover from a narcotic. The most characteristic actions of a narcotic such as alcohol, ether and chloroform, are these: A. It enters into a molecular association with the cell protoplasm whereby the latter remains passive. B. It leaves the protoplasm chemically intact and suspends only temporarily the cell's reaction to stimuli, reaching it by physiologic ways. The frequency of tuberculosis of the lungs among drinkers is, in my opinion, in no causal relation to the ingestion of alcohol. When a drinker has tuberculosis, I have never seen it to hasten the fatal ending of the disease; in fact, it seems to be of no significance in the morbidity or mortality.

5. From my statistics it appears that if chronic alcoholic excesses do have any deleterious action on the kidneys, we have no means, either clinical or biochemical, by which to detect such changes. Among 461 drinkers, only 42, or 9.1 per cent., showed evidences of nephritis, and only 24, or 5.24 per cent. showed temporary or permanent albuminuria, while 394 patients, or 85.7 per cent. of them show no evidences, either subjective or objective, of deficient renal depuration.

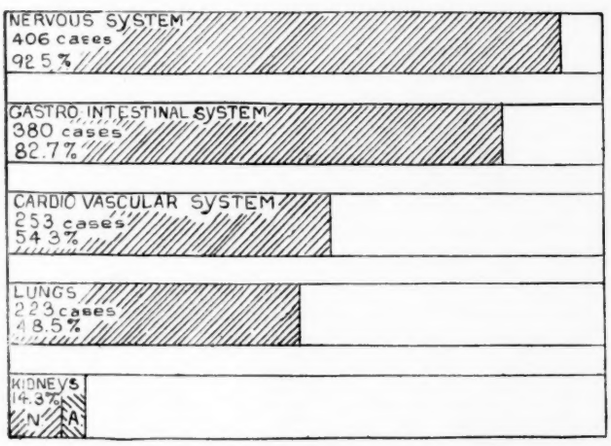

Chart showing percentage of morbid alterations in the various systems as observed in 461 cases of chronic alcoholism; N, nephritis, 9.1 per cent., or 42 cases; A, albuminuria, 5.2 per cent., or 24 cases.

Two explanations may be advanced: (a) we do not know as yet how to recognize renal lesions, or, (b) there is no lesion at all present.

NATURE OF NEPHRITIS

The diagnosis of a well-established nephritis is ordinarily easy, and is based on the anamnesis, the subjective and objective symptoms. But the recognition of the early stage of nephritis, at least of the contracted kidney, is attended with apparently insurmountable difficulties. Neither albuminuria alone nor cylindruria by itself would establish such a diagnosis. When we know the cell protoplasm, we shall be able to diagnose nephritis. It is a disease of metabolism initiated by some toxic processes, either autogenic or exogenic in Nature. We must approach it as a general systemic disease, not as a localized renal affection, such as the name nephritis unfortunately suggests.

If, then, in a patient whom we would rightly (according to our teaching) suspect of having renal lesions we find absence of the subjective as well as of the objective symptoms usually required in the diagnosis of nephritis, and if we find this repeatedly in the same patient, and collectively in so many cases, then we are justified in saying that all evidences lead only to one conclusion, namely, that nephritis in chronic alcoholics occurs only rarely, and if it does occur, it bears no relation to the ingestion of repeated doses of alcoholics.

The study of the comparative tabulations of morbid changes occurring in the other organs and tissues brings out a very striking contrast, and illustrates forcibly the pharmacologic properties of alcoholic liquors.

TABLE SHOWING PERCENTAGE OF RENAL LESIONS, CLINICALLY RECOGNIZABLE, AS OBSERVED IN 461 CASES OF CHRONIC ALCOHOLISM

	In Private Practice.		In Iowa State Hospital.		In Total Cases Observed.	
	Cases.	%	Cases.	%	Cases.	%
No evidences of nephritis	281	90.3	114	75.6	394	85.7
Albuminuria only, no casts	14	4.5	10	6.9	24	5.2
Temporary albuminuria	9	2.89	5	3.3	14	3.0
Nephritis present, alb. casts, etc.	16	5.2	26	17.5	42	9.1
Totals	311	100	150	100	461	100

It is certainly remarkable that the organs and tissues whose function it is to eliminate alcohol, namely, the kidneys and the lungs, are affected least, and that the former remain almost intact in chronic alcoholism unless repeated exposures to cold, and a real cause for nephritis are added. The organs eliminating most of the alcohol are least affected by it, while the nervous tissues are always affected in some way, sooner or later. Since this low percentage of nephritis obtained in 150 cases under my care at the Iowa State Inebriate Asylum, as well as in 310 cases in my private practice observed and treated during the last six years there, I can not logically consider alcohol as a psychic and somatic disease-producer only, but also as an actual diuretic. It not only is an intoxicant and narcotic, but also a detoxicant, for it certainly eliminates incidentally with the ingested alcohol other toxins as yet unknown to us, but undoubtedly directly concerned with the production of nephritis, so called. In a future publication, I shall summarize the present status of our views on the etiology of nephritis. The discussion will perhaps bring out what I am forced to omit for the sake of brevity. Since I consider my opportunities for the study of alcohol and nephritis exceptionally good, however, and my statistics superior to general hospital reports, I wish to submit the following conclusions:

CONCLUSIONS

1. Alcohol when taken daily, as it is by chronic inebriates, dipsomaniacs or drinkers, is not an irritant to the kidneys.

2. When nephritis occurs in a chronic alcoholic, it is probably due to some other concomitant toxic agent, and not to alcohol.

3. Overeating, acute intoxicants, exposure to colds, autointoxications, infections either manifest or latent, and some metabolic disorders as yet unknown, are the real causative factors of nephritis.

4. Alcohol when taken by drinkers as food or stimulant, such as we see in chronic alcoholism, is a diuretic.

5. Those tissues which eliminate alcohol are least affected by it. This applies to the lungs and especially to the kidneys.

6. Alcohol, while an intoxicant, is also a detoxicant, ridding the body of various deleterious catabolic products.

7. The comparative integrity of the kidneys in alcoholics may be due to the fact that the renal cells contain very few lipoids and lecithins and that therefore they are not at all acted on by the narcotic molecule.

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ABSTRACT OF DISCUSSION

DR. A. S. WARTHIN, Ann Arbor, Mich.: To what extent has Dr. Hultgen controlled this investigation by pathologic study? My experience is that the kidneys of alcoholics show a very high percentage of pathologic changes. I have never seen a normal kidney in a chronic alcoholic. I had an opportunity while in Vienna and Dresden to study the kidneys in a large number of cases of chronic alcoholism. Clinically, we may not be able to recognize these changes, which are not usually of the ordinary type of nephritis, the most common lesions being a sclerosis, scarring of the glomeruli, etc. The kidney has a smaller number of capable or normal glomeruli than has the kidney of a normal individual. The condition resembles that of the kidneys of people who have had repeated infections, whose kidneys have lost many glomeruli, being characterized by the presence of great numbers of hyaline glomeruli, and not necessarily presenting the picture of a nephritis.

DR. H. GIDEON WELLS, Chicago: My own autopsy experience has been largely with an alcoholic population in Chicago, and my general impression has been that the cardiovascular system escapes more than we have believed. My experience has been fully in harmony with that of recent German writers on the subject, that the blood-vessels of alcoholics show no earlier sclerosis than those of other persons, and are often in surprisingly good condition in proportion to the age of the subject. The kidneys I have found not commonly showing the ordinary forms of nephritis seen in the non-alcoholic individual; but that there are microscopic changes, I can well believe; a number of focal round-cell accumulations are often present, and we are also apt to get a low type of epithelium, dilated tubules, etc. We usually speak of the kidney of chronic alcoholism as a "hog-back" kidney. It is broad and round, yet looks macroscopically like a kidney in good condition; the functional capacity of that kidney is another matter. We should need a systematic study of albumin, casts, etc., as well as thorough quantitative tests of capacity to obtain accurate information on this point.

DR. DANIEL N. EISENDRATH, Chicago: Experience in general teaches that it is hardly fair to assume, from Dr. Hultgen's statistics and from the fact that the patients showed but small amounts of albumin in the urine, that there are no changes in the kidneys of alcoholics, for this reason: It is the indurative type of nephritis that is found most frequently in alcoholics, and in this form we seldom obtain in the urine more than minute traces of albumin. It sometimes requires repeated examinations before albumin can be discovered in such cases, as insurance examiners will bear witness. They say that alcoholics will come for examination day after day, without a trace of albumin in their urine; but that on the fifth or sixth day, there will be a trace of albumin. The same thing is true of casts. It is scarcely fair to draw the deduction, therefore, that alcohol has no bad influence on the kidneys. We know by such studies as I have spoken of that the chronic interstitial changes are the main features of the influence of alcohol on the kidneys.

DR. J. F. HULTGEN, Chicago: The same objection holds as for cardiopathic patients, the accompanying etiologic factors conditions which we find clinically render it difficult for the necropsist to assign the true cause to a given post-mortem lesion. Overwork and exposures to cold are by themselves potent causes of nephritis. Hence the difficulty of measuring at the autopsy the significance of chronic alcoholism in the genesis of Bright's disease. In looking over the literature, one may find enormous figures—20 to 50 per cent. of nephritis among delirium tremens patients. Howship Dickinson says in Allbutt's last volume, "We found in forty-eight autopsies on men who had died of alcoholism that there was no larger percentage of contracted kidneys than in forty-eight post-mortems on others who had not been associated with any liquor traffic at all." This seems to me good evidence in favor of my contention that chronic alcoholism plays a very subordinate rôle in the causation of chronic nephritis. Indeed, as we can interpret it clinically, it does not seem to have any existence at all. What Dr. Wells said about the cardiovascular system is interesting. I think that it is a confirmation of the diuretic hypothesis of alcohol. If alcohol is a true diuretic, it should be a detoxicant as well. It eliminates from the system some catabolic substances which we do not as yet know. I cannot go into the physiology of alcoholism; but the expression "hog-back" kidney in these cases is a Philadelphia term, invented by Dr. Conner of that city, and has rather frail anatomic foundations. Dr. Eisendrath says that clinical findings alone are not good enough in the diagnosis. We cannot always diagnose nephritis clinically, but when a man who drinks to excess for many years is nevertheless free from all symptoms usually associated with nephritis, then there is good reason to believe that he has none. When, in addition, he lives for a long time and has neither the petit Brightism (Dieulafoy) nor uremic poisoning, one is inclined more strongly to believe that alcohol has no effect in this direction. I think that we shall have to fall back on clinical evidence, after all; and the internists' reasoning proceeds from facts which are no more circumstantial than those of the pathologist. They should walk abreast and not in single file.

THE INFLUENCE OF MAGNESIUM SULPHATE ON THE MOTOR CELLS OF THE CEREBRAL CORTEX *

H. F. HYNDMAN, M.D., AND W. E. MITCHENER, M.D.

Through extensive studies conducted by Meltzer, Auer and other investigators, it has been established, among many other important facts, that injections of magnesium salts produce anesthesia accompanied by a loss of reflexes, muscle tonus, and inhibition of the convulsions produced in tetanus. The effects are said to be paralysis of nerve cells, without preceding excitation, slight lowering of blood-pressure and shallow respiration.

The anesthetic dose, it was assumed, exercised an action directly on the nervous system, causing temporary sensory and motor depression, in that the nerve-cells of the cortex and centers in the medulla oblongata were affected. Furthermore, by local application of the magnesium solutions to the nerve trunks the conductivity of the nerve impulse is interrupted, while the contractile power of the muscle is not abolished by an anesthetic dose, since strychnin administered to an animal while under anesthesia caused convulsions to appear.

In considering the above facts, it became of interest to ascertain, whether the motor cells of the motor area in the cerebral cortex were paralyzed or affected by the dose, or whether the results secured were due to paralysis of the sensory cells only.

The investigations were conducted on rabbits, for which subcutaneous injections of 1.5 gm. of magnesium sulphate per kilo animal produced, in about fifty minutes, anesthesia, that lasted two hours.

Three sets of experiments were decided on, which, briefly outlined, were as follows:

First, in order to ascertain the minimum dose of Faradic current which, when applied to a definite locality in the motor area, produced a definite, measurable

* Read in the Section on Pathology and Physiology of the American Medical Association, at St. Louis, June, 1910.

* From the Physiologic Laboratory of the University of Kansas, Lawrence, Kan.

muscular response when the animal was put under ether anesthesia, during which the motor cells of the cortex were not paralyzed. The motor area was exposed and the minimum strength of current determined. With this known strength the motor cells were then tested under magnesium sulphate anesthesia. If the known muscular responses could be elicited, it would be assumed that the motor cells were not paralyzed.

Second, in order to be assured that the current actually stimulated the motor cells and did not produce the muscular contraction by an escape of the current to the motor fibers, the thin layer of the cortex, containing the motor cells was carefully removed, the fibers exposed and again the minimum current determined that would, under this condition, produce the muscular response that was secured when the motor cells were intact. If this current proved to be equal to or less than that secured with the intact cortex we might be led to believe that the motor cells were paralyzed.

Third, to be perfectly sure that the motor cells were or were not paralyzed, it was further necessary to ascertain the strength of current that could produce a known muscular response, when the motor cells were stimulated by impulses reaching them through afferent nerve fibers.

With these three data, obtained under ether anesthesia, it was assumed that the means were at hand by which the desired information could be gained on the rabbits, under magnesium sulphate anesthesia.

In securing the results for the first set of experiments, the motor area was exposed under ether anesthesia. The strength of current was then ascertained, which would produce a characteristic contraction in the leg muscles of the side opposite to the side stimulated, when the insulated platinum electrodes were placed on a well defined area. Then the rabbit was allowed to come out from under the anesthesia and given a dose of magnesium sulphate. As soon as anesthesia set in, the procedure above described was repeated, for the same as well as for the opposite motor area. As a control, the same method was followed on a rabbit that had been given a dose of magnesium sulphate without the preliminary ether. A comparison of these results showed that it required practically the same strength of current to elicit the response under magnesium sulphate as it did under ether anesthesia.

The method followed to obtain the results for the second set of experiments differed from that described above only in certain particulars. As before, the minimum strength of current required to produce the characteristic contraction, when the defined area was stimulated under ether anesthesia, was first found. Then the cortex containing the motor cells of that area was carefully removed. Again, the least strength of current was determined that produced the characteristic contraction, when the electrodes were placed directly on the now exposed motor fibers. It was found that it required a greater strength of current to elicit the response when the fibers were directly stimulated, than when the impulses reached them through their motor cells.

The above procedure was next repeated on the motor area of the other side, but under magnesium sulphate anesthesia. Furthermore, as a control experiment, magnesium sulphate anesthesia was secured at the beginning, the minimum strength of current then found that produced the contractions in the opposite leg when the insulated electrodes were placed on the motor cells. This current was then compared with that secured after the motor cells were removed, and the fibers directly stimulated, both for the same as well as for the opposite motor area. It was interesting to find that the results agreed with those obtained under ether anesthesia.

The third set of experiments consisted in isolating the dorsal roots of the seventh and eighth cervical roots, and determining the strength of current applied to their central cut ends, that would cause certain muscles of the mouth to contract reflexly under ether anesthesia. These steps were then repeated under magnesium sulphate anesthesia, both for the same and for the opposite side. In this case, the afferent stimuli reached a motor cell in the nucleus of the facial nerve, which evidently was not paralyzed, and which responded to the same minimal strength both under ether and magnesium sulphate anesthesia.

A comparison of all the experiments showed that practically the same minimal strength of current was required to produce the same extent of contraction under ether as under magnesium sulphate anesthesia, whether applied directly to the motor fibers, indirectly to the fibers through the motor cortical cells, or when applied to afferent fibers that secured a reflex response through a motor neuron; and that a greater strength of current was required when applied directly to the motor fibers than when the impulses reached these through stimulation of the motor cortical cells. We conclude, therefore, that magnesium sulphate anesthesia does not paralyze the motor cells of the cerebral centers or cortex in the rabbit.

We take this opportunity to thank Dr. Ida H. Hyde, under whose supervision these experiments were conducted, for her many kind suggestions.

ABSTRACT OF DISCUSSION

DR. LOUISE G. ROBINOVITCH, New York: The article speaks of "blocking" impulses by means of electric currents when testing the effects of anesthetic agents. In my experiments of the last five or six years I found it impossible to rely on electricity for such tests, when anesthetics were being administered to dogs or other animals. I have been using special electric currents, instead of chloroform or ether, for analgesia for operative laboratory work. While experimenting on the method of resuscitation of dogs in a condition of apparent death caused by chloroform, the carotid artery was exposed while the dog was under the influence of electric analgesia; the artery was then connected with the manometer and the dog chloroformed intensively with the purpose of causing apparent death. If through error the chloroforming was commenced before the breaking of the electric current, the animal became extremely agitated, and the blood-pressure rose so high that the "rider" was thrust out of the manometer.

In my published papers on electric analgesia I also report the incompatibility of electric analgesia with morphinization; a normal dog was put under the influence of electric analgesia with some ten volts registering 1.5 milliamperes. On the following day, the same dog was thoroughly morphinized. The animal remained on the table in a stuporous and irresponsive condition. The electric current was then made to course through the animal's body, cathode at the forehead, anode over the loins. The dog became excited when ½ volt was turned on and jumped off the table when 1 volt was turned on, the amperage being too small to be registered.

The experiments showed conclusively that electric currents used for producing sleep produce the effect through a mechanism that differs from that characterizing the production of sleep or anesthesia with chloroform, ether, morphin, chloralose and other agents. Electricity should not be used as a "block" when testing analgesic effects of various other anesthetic or analgesic agents, because electric and other analgesics are incompatible.

THE RELATION OF THE BLOOD-VESSEL WALL TO COAGULATION OF THE BLOOD*

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BALTIMORE

It has been shown by numerous observers, especially Wooldridge[1] and Morawitz,[2] that tissue extracts, such as those obtained from grinding up liver, kidney, muscle, etc. with salt solution, have a marked accelerating action on the coagulation of blood. Artus[3] has demonstrated that if salt solution was simply allowed to run over the surface of tissue which has been rendered as free as possible from blood the salt solution acquired an accelerating action. And if the solution of salt were run over the surface more than once, the accelerating properties of the salt solution increased in proportion.

This substance, or perhaps it would be better to say, these substances, although they have never been identified, have been given the name thrombokinase or zymoplastic substances.

And it was these to which Sahli[4] referred to in 1905 when, after a most careful study of hemophilia in all its aspects he came to the conclusion "that the cause of the absence of natural blood clotting in hemophilia is to be sought in that the injured blood-vessel wall, at the place where the thrombus ought to be formed, does not furnish sufficient quantities of thrombokinase or zymoplastic substances necessary to produce fibrin-ferment from the thrombogen or betaprothrombin."

This unusual conclusion he reached by a process of exclusion, bringing no experimental proof to bear. Indeed, the only mention of the blood-vessel wall extract that I have been able to find in the literature has been that of Loeb[5] in 1904, and that was only in passing.

Working in a field different from the other observers and from an entirely different point of view, I came on this subject by chance. And as it seemed to explain some of my difficulties, a number of observations were made. They were quite interesting and rather striking and may possibly add a little to our knowledge of this complex subject.

In the course of some recent work on the surgery of blood-vessels,[6] it was observed that clotting occurred on the adventitia of the vessels with surprising rapidity, following contact between it and the blood. Furthermore, in common with others who have worked in this field, we soon found that the success of a blood-vessel suture depended primarily on the proper treatment of the adventitia; unless every vestige of it was removed from the cut edge of the vessel and the line of suture, failure almost invariably occurred on account of the formation of a thrombus.

In considering this and in studying it with a view to overcoming the difficulty it seemed possible that this action of the adventitia might not be entirely mechanical, as hitherto believed, but that possibly there was in addition to this factor, a substance contained and secreted in the adventitia, which, on injury to the vessel, was poured out and aided in the clotting process. Further consideration led to the belief that possibly this substance was contained not only in the adventitia, but in the other two coats of the vessel as well, and that in all clotting and thrombus formation, both within and without the vessel, this factor had to be dealt with.

In an experiment based on this theory, then, a dog was bled to death, following which its aorta was removed. After this had been thoroughly washed in normal salt solution to remove all visible traces of blood, it was divided into its three component parts: adventitia, media and intima, a procedure accomplished without great difficulty. The three coats were then separately ground up in mortars containing sand and a little salt solution—10 to 20 c.c. The extracts thus obtained were filtered off into three separate dishes.

From the blood of another dog, some fluorid plasma (0.3 per cent.) was made, likewise some blood-serum. To 1 c.c. of the fluorid plasma, 0.5 c.c. of the extract of the adventitia was added; no clot resulted, but when to this, 0.5 c.c. of serum was added a solid clot formed in about one and one-half minutes. Plasma plus serum alone formed no clot. Plasma plus extract of the media plus serum, same quantities as before, formed a clot in about the same time as when extract of adventitia was used. The same phenomenon occurred when extract of intima was used.

With this knowledge then—that all three coats of the vessel acted alike—it was decided to work henceforth with the whole blood-vessel wall. And since it was feared that fluorid plasma might obscure matters, it was also decided to work with the pure blood, always using controls.

From the vessels of another dog, both veins and arteries this time, another extract was made in the same way as the former ones. Two test-tubes were then taken, thoroughly cleaned, dried and oiled inside with a neutral oil. In one a few drops of the extract were placed, in the other nothing (all work was done at room temperature). A dog was then placed on the table and after being etherized, a cannula which had been cleaned, dried and oiled exactly as the test-tubes had been, in order to retard clotting, was placed in one of its carotid arteries. Equal amounts of blood, about 3 c.c. were allowed to flow into each of the test-tubes. A solid clot formed in about forty-five seconds in the tube containing the extract. The blood in the other tube remained fluid for two and one-half to four minutes, clotting then gradually taking place—the usual coagulation-time for the dog.

As it was desired to get a blood that would not clot at all, a chicken[7] was procured and bled through a cannula absolutely clean, free from dust particles, dried and oiled, into centrifuge tubes prepared in precisely the same way. The blood thus obtained was centrifuged, a clear straw-colored plasma resulting, which remained fluid at room temperature for several days. A sodium chlorid extract was then made from the veins and arteries of another chicken, which had been previously bled to death; the vessels as usual were thoroughly washed in sodium chlorid before being macerated.

Two of the oiled test-tubes were again taken and into each the same amount of chicken plasma was poured. To one of them a few drops, about 0.3 c.c. of chicken vessel extract were added; to the other nothing. A solid clot suddenly formed in the one containing plasma plus extract within one and one-half minutes; the other remained fluid over a day.

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* From the Hunterian Laboratory of Experimental Medicine.

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As it was desired then to get a more concentrated solution, the veins and arteries of five dogs were taken, washed carefully in sodium chlorid and ground up with sand in a meat grinder. The resulting mass was mixed with kaolin, after which it was placed in a Buchner press, and the tissue juices expressed, about 20 c.c. of a watery-looking fluid resulting. Two-tenths of 1 c.c. of this fluid clotted 3 c.c. of a dog's blood in forty-five seconds, the clot beginning to form in thirty seconds. The control did not begin to clot until after two minutes, and was not finished until about three and a half to four minutes, the usual clotting time for dog's blood.

Then the tissue-juices from pig's aortas, obtained and prepared just exactly as those of the dog had been, were obtained. A young pig was then procured and a cannula inserted into one of its carotids. Into one test-tube 0.2 c.c. of the juice was placed, into the other nothing. Three c.c. of blood were run into each tube. Clotting occurred within forty-five seconds in that tube containing the extract; in the other not until about the expiration of three and a half to four minutes. After repetition and confirmation of the test, the same juice from the pig's aorta was tried on dog's blood, with the result that a clot suddenly formed within forty-five seconds. Following this, the pig's juice was tried on rabbit's blood and here, too, clotting occurred with the same rapidity and constancy, while the controls remained fluid a normal length of time—two and a half to four minutes.

On heating these extracts and juices, it was found that they partially lost their activity and on prolonged boiling they lost it completely. Likewise, the activity disappeared if they were allowed to stand at room temperature for any length of time—say over twenty-four or thirty-six hours. If they were kept on ice the activity remained much longer than if they were kept at room temperature.

A few drops of acetic acid added to the juice threw down a rather heavy whitish flocculent precipitate. This precipitate, after being washed with sodium chlorid, and then taken up with a few drops of sodium carbonate, acted exactly like the whole juice, and with the same rapidity, while the filtrate was practically inactive.

It would seem therefore from the above that just as in the liver, muscle, etc., so in the blood-vessel wall itself there is a substance which, once the vessel is injured, probably aids in the formation of a clot. And if this is true, those engaged in the field of vascular surgery have still another problem to consider in connection with the already very difficult and trying technic. The final solution of this problem, however, rests with the pharmacologists and physiologists, as is the case with many other problems of modern medicine.

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Endemic Goiter in Brazil Due to Schizotrypanum.—C. Chagas writes to the *Brazil Medico* to describe what he thinks is a new morbid entity, the cause a schizotrypanum named for Oswaldo Cruz. The affection in question is almost invariably accompanied by enlargement of the thyroid or parathyroids. The incipient goiter has been discovered even in infants less than six months old, which shows, he says, that the water can scarcely be incriminated, the infants at that age being fed exclusively on breast milk. This tropical infectious disease seems to be responsible for much mortality, especially in children, in the contaminated zones, and also for chronic illness and physical degeneracy, due to the presence in the blood of the *Schizotrypanum cruzi*. His preliminary report is published in the *Brazil Medico*, 1910, xxiv, 163.

PHARMACOLOGIC FETISHISMS

A SECOND CONTRIBUTION*

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WASHINGTON, D. C.

Last April I had the honor of reading before the Georgetown Medical Society a paper with the above title, which was an attempt to refute the following therapeutic delusions: (1) that olive-oil will dissolve gall-stones; (2) that valerian is valuable in hysteria; (3) that tannic acid will stop internal hemorrhage; (4) that alcohol and ether hypodermically injected are indicated in shock and collapse; (5) that colchicum cures gout; (6) that the anilin dyes are tissue antiseptics; (7) that epinephrin given by the stomach or hypodermically acts as a heart stimulant; (8) that potassium iodid will affect the scleroses; (9) that chlorate of potassium will cure stomatitis; (10) that the hypophosphites and phosphates are beneficial in neurasthenic and adynamic states; (11) that lithium salts are indicated in the uric acid diathesis; and (12) that calcium salts will stop internal bleeding.

The article was published,[1] and to my great surprise it attracted more than a passing notice. Some letters reached me from various parts of the country objecting to the opinions expressed. Some of my confrères in the city likewise took me to task for my unorthodox beliefs. I hope that my continued adherence to all of the opinions delivered at that time will not be ascribed to stubborness or egotism; and for the various pharmacologic and physiologic grounds upon which those opinions are based reference may be made to the original paper.

It is my desire at this time to present briefly another dozen of similar delusions and to attempt their discussion as impartially as possible, basing the arguments on what appears to be the only firm ground in matters pharmacologic, namely, the physiologic actions of the drugs concerned.

I. LEAD AND OPIUM WASH IN SPRAINS

In the out-patient department of the hospital some time ago, one of the students came to me and said "Doctor, will you please write me a prescription for lead and opium wash? I want to use it for a case of sprain."

"No," I replied, "such a thing would be contrary to rational pharmacotherapy and I am surprised that you have so far forgotten your instructions in the laboratory and the lecture room as to ask me such a thing."

And yet the student was morally justified in doing so under the circumstances, for while his pharmacologic training had supplied him with certain facts with respect to the local effects or rather lack of local effects of lead and opium, yet when his practical hospital dispensary experience began, he saw his leaders and his teachers daily applying the classic lotion of lead and opium. Why should he not follow their illustrious example? The following are the reasons why he should not:

Opium is entirely devoid of any peripheral effects, especially when applied to the unbroken skin. Even when applied directly to exposed nerves morphin has practically no effect on their irritability. The sensibility of the skin is lowered by a subcutaneous injection of morphin, but the action involves the whole superficies of the body, and is due to central action. Opium there-

* Read before the Clinical Society of the District of Columbia, Feb. 14, 1910.

1. THE JOURNAL A. M. A., May 15, 1909, lii, 1557.

fore, or even morphin itself, is of no service whatever as a local anesthetic, when applied either to the skin or mucous membranes. Absolutely the same is true of lead, which is one of the least corrosive, but one of the most astringent of the heavy metals. Applied to the skin, however, the salts of lead are devoid of action, because the precipitation of proteids is prevented by the intervention of the epithelium.

The application of hot water is so simple, so cheap and so unspectacular that it does not appeal strongly to the imagination. But it is after all the most efficacious method of relieving the pain of sprains.

II. ACONITE INTERNALLY IN NEURALGIA

Once on a time I had almost infinite faith in the following prescription which I obtained from a manual of formulas:

R.	Crystallized aconitin	gr.	1/20
	Methylene blue	gr.	30
	Powdered nutmeg	gr.	30
	Codein sulphate	gr.	8
	Extract cannabis indica	gr.	4

15 capsules—one every four or five hours.

There is no doubt of the efficacy of this mixture, but the fetish consists in attributing to the aconite what is accomplished by the two narcotic ingredients, codein and cannabis indica, particularly codein. The first three ingredients are entirely superfluous. Aconite, when locally employed, first stimulates the peripheral terminations of the sensory nerves, more especially those of common sensation. The stimulation finally passes into depression, and thus induces a sense of numbness at the point of application, and when poisonous doses have been used, this numbness extends over the body. The rational inference from these facts is that the local application of aconite or of aconitin, particularly when measures are taken to effect their penetration, may be of some service in benumbing the sense of pain. Hypodermic injections are precluded on account of the severe and enduring pain which they cause. When, however, the drug is internally administered in therapeutic doses, the benumbing effects of aconite are not produced.

The methylene blue and powdered nutmeg remain to be accounted for, but while the former imparts to the urine a color familiar to the washerwoman, this is not sufficient excuse for its insertion, while the powdered nutmeg does not even increase the cost of the prescription enough to influence the psyche of the patient.

III. SPARTEIN AS A CARDIAC TONIC AND SUBSTITUTE FOR DIGITALIS

I had a long argument with an enthusiastic confrère some time ago on this subject, and at its conclusion we parted, each convinced of the other's ignorance. The argument degenerated into a dispute and nothing was accomplished. "A man convinced against his will, is of the same opinion still." In dealing with this particular fetish, I shall therefore attempt to be particularly cool and impartial, although the temptation is strong to treat it more summarily.

Spartein is a liquid alkaloid found in the common broom plant, along with a neutral substance, scoparin. Chemically it is a pyridin derivative and is so closely related chemically to two other alkaloids, namely, coniin and gelseminin, that they are always considered together. Now, although coniin and gelseminin are so closely related to spartein chemically and also in their pharmacologic behavior, no one has ever suggested using them as heart stimulants. It is not my purpose, however, to attempt to show why spartein was ever suggested as a cardiac stimulant, for indeed one may search through every experimental analysis that has ever been made of its action on the normal animal without finding the shadow of justification for it.

The peripheral termination of motor nerves are paralyzed by spartein (curare action). The rhythm of the heart is slowed and its contractions rendered weaker by it—a very strange action for a heart stimulant. No increase in the arterial pressure is observed.

Its advocates can say, with truth, that like digitalis, it slows the heart. But the heart can be slowed by choking the patient provided the process be kept up long enough to produce asphyxia. While spartein slows the heart it does so by depressing its ganglia. Digitalis, on the contrary, slows the heart by vagus stimulation. Spartein is less poisonous than coniin or gelseminin and this is why it was not found out sooner by the general practitioner, while to the pharmacologist the entire similarity of all three of these alkaloids has long been a matter of common knowledge.

Spartein is therefore of no value in heart disease and is no substitute for digitalis.

IV. NITROHYDROCHLORIC ACID IN DISEASES OF THE LIVER AND JAUNDICE

When the instructor in clinical medicine shows the senior class a case of icterus he naturally describes the various pathologic states which combine to produce it. In doing so his description is strictly based on well-attested scientific facts.

In dealing with the application of drugs to the treatment of the case, however, the same care is not always bestowed. Custom and hearsay and empiricism are frequently allowed to rule. If this were not the case nitrohydrochloric acid would never have achieved the reputation which it seems to hold, that it possesses some occult and wonderful influence on the liver. As a matter of fact, dilute nitrohydrochloric acid can have only a simple acid function in the alimentary canal, and can be absorbed only after its neutralization.

A small amount of chlorin is, however, present in the acid, and it is not inconceivable that this may have some effect on the liver, but no proof of any such action really exists. One fact concerning the treatment of liver diseases by dilute nitrohydrochloric acid, which incidentally arrests the attention, is that some authorities advise its use as an external application over the liver or in a bath or even a foot-bath. If the acid works as well in a foot-bath as it does internally perhaps it would work as well in the bottle as out of it.

V. PHYSIOLOGIC SALT SOLUTION AS A HEART STIMULANT

Do not rise in immediate rebellion at this. I do not mean to say that normal salt solution is of no value, but simply that it is not a heart stimulant. When a considerable amount of blood has been lost through hemorrhage, the introduction of physiologic salt solution (0.9%) in varying amounts is much practiced, though the quantity used has been materially lessened of late years to the great benefit of the patients. For it has been shown that the introduction of large amounts of physiologic salt solution is not an entirely innocuous process. The blood becomes much diluted, then highly concentrated, and a considerable amount of hemoglobin is set free in the plasma and these effects may last a week. The remedial effects of the treatment have been denied by some (Feis). The advocates of the treatment have claimed that the heart is directly stimulated, and that

consequently the transfusion of physiologic saline solution is of benefit in cases of cardiac weakness or failure not due to hemorrhage.

But the effects of the solution on the heart have been shown to be mechanical, and exerted only after hemorrhage; therefore the application of this treatment to heart failure is irrational. Even in hemorrhage the amount given should be carefully guarded. A good rule is to give not more than 250 c.c. at a time.

VI. NITROGLYCERIN AND AMYL NITRITE AS HEART STIMULANTS IN ANESTHETIC ACCIDENTS AND SHOCK

It is a sign of substantial progress that we see fewer anesthetists prepare a solution of nitroglycerin prior to anesthesia to be used in cases of collapse. The quietus on this ridiculous custom may be said to have been put by Cushny when he used the following words: "Amyl nitrite has been advised in accidents during chloroform anesthesia on the theory that it would benefit the circulation; but as a matter of fact it would appear strongly contraindicated in those cases, in which it is true that the heart is extremely depressed but in which the arterial tension is practically zero. Its use is especially irrational if, as has been suggested, the failure of the respiration is partly due to anemia of the central nervous system. The cases in which recovery has occurred after this measure may in fact be said to have recovered not owing to, but in spite of the use of amyl nitrite."

VII. CALOMEL AS A CHOLAGOGUE

The idea that calomel acts as a cholagogue is as classic among physicians as the idea that Franciscus Sylvius described and named the Sylvian fissure, but neither is entitled to credence. Our professor of anatomy, Dr. Baker[2] showed the Sylvius notion to be wrong, and pharmacologic observations by Pfaff, Stadelman, and others have demonstrated the former to be equally fallacious. The beautiful blue Danube of Strauss is in reality a very muddy stream, and the green stools of calomel are only an accidental circumstance. Calomel behaves as a purgative by acting as an irritant on the intestine owing to its partial solution and the affinity of the mercury ion for the epithelium. The stools are often of a greenish color, owing to the fact that the bile present in the intestine is hurried through the bowel, and prevented from being converted into brown fecal pigment by the antiseptic power of the mercury, which prevents the growth of micro-organisms, upon which the conversion normally depends. But the secretion of bile by the liver is absolutely unaffected, as has been repeatedly demonstrated in animals and in man, in cases of biliary fistula. The liver does not seem to be at all affected by calomel and the removal of the so-called bilious symptoms is a result of the purgation and the antisepsis.

VIII. AMMONIUM CHLORID AS AN EXPECTORANT

It may be said at the outset that many of the so-called expectorants, such as benzoic acid, tolu, terpin hydrate, as well as the one under discussion have no such effect if by expectorant we mean a substance which has the power of increasing the secretions of the pulmonary mucous membrane. Most of them have an opposite effect where any result can be demonstrated. But chlorid of ammonium is so universally used in cough mixtures for its supposed expectorant quality that it is deserving of special mention. The following facts concerning the fate of ammonium chlorid after absorption demonstrate pretty clearly that the drug cannot act as an expectorant. Solution of chlorid of ammonium in direct contact with a mucous membrane may develop ordinary salt actions dependent on the degree of its concentration. Of course, when swallowed it does not come in contact with the pulmonary mucous membrane. Being a very soluble and diffusible salt it is readily absorbed into the portal circulation and carried to the liver and other organs. Here it is quickly decomposed and the ammonium ion is converted into urea. The chlorid ion is set free as hydrochloric acid, which is immediately neutralized by the ammonium which carnivorous animals form in their tissues for neutralization of acid substances. Thus some ammonium chlorid is reformed and rapidly secreted in the urine. The formation of ammonia in the tissues withdraws, of course, a certain amount of the tissue nitrogen so that the actual output of urea is not much increased. Ammonium chlorid is therefore entirely decomposed in the body, and is excreted in the urine partly as urea, partly as reformed ammonium chlorid. None of it is excreted by the pulmonary mucous membranes. It must therefore be sprayed on these membranes to affect them and the cough mixture is not usually given in this way.

IX. SWEET SPIRITS OF NITER AS A DIURETIC AND DIAPHORETIC

How ruthless is the hand of time! It seems almost a sacrilege to attempt to destroy this pretty little harmless delusion. But if it must be done, let it be done briefly. Spiritus ætheris nitrosi or so-called sweet spirits of niter contains some alcohol, ether, and aldehyd and a slight trace of ethyl nitrite, the last when freshly prepared.

The fresh undiluted solution has a slight nitrite action. But when it is diluted with water and administered the nitrite escapes and the only effect left is that of a very small amount of ether and alcohol, which is negligible It does not affect the kidneys or the sweat-glands; consequently it is neither a diuretic nor a diaphoretic.

X. THE PEPSIN-PANCREATIN-DIASTASE FETISH

The administration of these ferments in the treatment of dyspepsias is like carrying coals to Newcastle—entirely superfluous. The digestive ferments completely disappear from the alimentary canal only after death and even then only some time after, so that the occasion never arises when they are seriously needed. There is no harm in them, however, so that, as long as we need psychic playthings in pharmacotherapy, they may be of use for that purpose.

XI. ERGOT AS AN INTERNAL HEMOSTATIC

The action of ergot is a complex one, being compounded of three actions, one a sapotoxin action, the second a convulsive action due to cornutin, and the third a vasoconstrictive action due to sphacelotoxin. The vasoconstriction may lead to gangrene, as can be seen in the rooster's comb. The vasoconstriction which is due partly to central but mainly to peripheral causes is not general, consequently the blood pressure is only moderately raised. Only certain vascular territories are affected, and it is quite impossible to exactly define their location. A bleeding vessel may or may not be constricted. As a hemostatic therefore, ergot is to say the least, uncertain. Its action on the uterine muscle is the only typical effect which may be produced with certainty so far as we know, and even here recent studies would indicate that the doses used for this purpose in medical practice are totally inadequate.

2. Johns Hopkins Hosp. Bull., November, 1909.

XII. SOME TOXICOLOGIC FETISHISMS

There are several delusions participated in by many of us concerning the treatment of poisoning. This is due largely to the fact that our text-books are so frequently reprinted instead of being reedited, as they claim to be, that all that is necessary for the perpetuation of an error is to get it into an early edition, after which its subsequent exclusion is about as difficult as would be that of the book of Genesis from the Old Testament. Three examples of this kind of fetishism will be briefly discussed.

1. Old oil of turpentine in phosphorus poisoning.
2. Hydrated oxid of iron and magnesia in arsenic poisoning.
3. Sodium sulphate in phenol poisoning.

The thing which has killed my confidence in these time-worn antidotes is animal experimentation. They have been tried and found wanting. Copious stomach-washing has been found to be the only effective means of combating arsenic and phosphorus poisoning. The combination of phenol with sulphuric acid in the tissues actually takes place and the resulting compound is comparatively harmless, but the administration of sodium sulphate to supply the sulphate has been found wanting because the phenol will not combine with inorganic sulphates but only with organic sulphur compounds which are in process of being oxidized to sulphuric acid.

Some other pharmacologic fetishisms are as well worthy of consideration as the above which have been described, such, for example, as the use of hydrocyanic acid as a cough sedative, hydrastin as a hemostatic, veratrum viride in eclampsia, creoste, ichthyol and cinnamic acid in tuberculosis, and the use of the euphonious strontium and vanadium; but space is wanting and perhaps even the interest of those to whom these more or less iconoclastic thoughts are addressed is now exhausted.

It is unfortunate perhaps that he who contends for the strictly rational use of drugs earns for himself the derogatory title of a therapeutic nihilist, but though I "deny the allegation and defy the allegator" in this respect, I must exclaim in the strain of Patrick Henry: "If this be nihilism, make the most of it."

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CATARACT-IN-CAPSULE EXTRACTION BY A NEW MEANS AND A NEW METHOD *

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The ideal operation for cataract is the one that insures the removal of the cloudy lens in its capsule. The means and the method that can make this operation easiest and safest are to be desired. At the meeting of this Section one year ago, while listening to Dr. Greene's paper on the Smith operation, it occurred to me that an instrument could be made that would tear loose the ligaments and make the expulsion of the lens in its capsule easy.

I immediately made a drawing of the newly thought of instrument, and two days later, in Philadelphia, had one made by Ferguson. The accompanying illustration is a perfect representation of the original instrument, which was briefly described in THE JOURNAL last year,[1] and on which, it seems to me, no improvement can be made. As well shown, it is a right- and left-handed instrument. Each end terminates in a double curve, one in line with the handle and the other at right angles to this line, the angle being at the point of union of the two curves. The two curves have the same radius, which approximates that of the anterior surface of the lens, and they are of the same length, not less than 5 nor more than 6 mm. There should be no sharpness at the angle of union of the two curves, nor at the free end of the second, or horizontal, curve. The edges of each curve should be well rounded. If thus made, the manipulation of the instrument will not rupture the capsule while tearing loose the ligamentous attachments. I believe the means to be as perfect for the purpose as is possible. I have named it the cataract-in-capsule detacher.

While my first conception of the instrument was perfect, the method of operating with it was evolved in the course of five operations. I will outline every step of the operation as I now do it, and as I believe it should always be done. Even the steps which are common to all cataract operations, and for which I can claim no credit, may be mentioned in connection with those steps that are peculiar to my operation, and are of my own devising.

1. After dilatation of the pupil, there should be thorough aseptic preparation of the patient, the instruments, the operator and the assistants.

2. The eye should be completely anesthetized by means of a 4 per cent. solution of cocain, one or two drops every four minutes for three instillations, the operation to begin at the end of another four minutes, or twelve minutes after the first drops. This method of using cocain makes possible a painless operation, in most cases.

3. The lid elevator should be used for controlling the upper lid, and this alone should be done by one assistant, the operator himself inserting the instrument and then placing it in the hand of the assistant, who should be instructed not to allow either the instrument or the lid to come in contact with the globe at any stage of the operation. The assistant should thus hold the lid elevator until the operator, having delivered the cataract, is ready to take the elevator into his own hands for the purpose of gently restoring the lid over the eye.

4. A second assistant, with the index-finger of his left hand placed on the skin of the lower lid, should draw it down gently, but not necessarily very far. In his right hand he should hold the iridectomy scissors, which he may, or may not, be called on to use. This assistant should stand to the right side of the patient, whether the eye be the right or the left, while the other assistant should stand on the side not operated on. The first assistant can be dispensed with entirely if the operator prefers the speculum to the elevator; and the only thing the second assistant would have to be ready for is the use of the iridectomy scissors. But it is safer to use the elevator than to use the speculum.

5. The lids out of the way, the operator, standing always at the head of his patient, should fix the eyeball by firmly grasping the tendon of the internus at its insertion, resting the hand holding the fixation forceps on the opposite side of the face and on the bridge of the nose, so that he may neither pull nor push the eye with the forceps—simply to steady the eye is the purpose. With a Graefe knife, sharp at point and edge, in his other hand, the operator makes the puncture and counter-puncture of the cornea with greater ease because of

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Savage, G. C.: A New Method for Detaching the Cataract in Its Capsule, THE JOURNAL A. M. A., Oct. 9, 1909, liii, 1186.

the character of the fixation, and then completes the incision, which need not include more than five-elevenths of the corneal margin. A conjunctival flap should be made when possible, but always the incision should be upward and in the corneal margin.

6. Still grasping the tendon of the internus, the operator lays down the knife and takes up the iris forceps, with which he seizes the iris opposite the center of the corneal incision, and gently drawing it out, directs the assistant to clip it close to the forceps, thus insuring a small iridectomy. (Through several operations I wavered between a small iridectomy and no iridectomy, but have finally settled on the correctness of a small iridectomy. It facilitates the dislodgment and delivery of the lens, and the only objection attending it is the bleeding which sometimes follows the cutting.)

7. Still grasping the tendon of the internus, the operator lays down the iris forceps and takes up the detacher. He easily passes it through the corneal incision, directing the free point into the pupillary opening, and passing it beneath the nasal part of the iris, in contact with the anterior surface of the cataract. The angle of union of the two curves, and the vertical curve itself, are easily passed between the iris and the cataract. When thus passed, the horizontal curve must rest on the cataract about half-way between its center and its lower border, while the vertical curve must rest on the cataract half-way between its center and its temporal border; and both curves must be behind the iris, so that it may not be injured, when the dislodging pressure shall be made. This is the primary position of the

Cataract-in-capsule detacher.

detacher. On two easily executed movements of the detacher depends success in freeing the cataract from its ligaments: First, by rotating the instrument on its long axis outward the vertical curve is made to press the outer edge of the cataract backward, while it makes the inner or nasal edge advance to the same extent. This pressure, when properly made, tears loose the lateral (both temporal and nasal) ligaments, almost from top to bottom. The detacher is now returned to its primary position, and the second movement is effected by advancing the upper end of the instrument in such a way as to make pressure with the horizontal curve. This pushes backward the lower part of the cataract, while it causes the upper margin to advance to the same extent. This tears loose the remaining ligaments above and below, which were not torn by the first rotation. The rotation of the cataract, first on its vertical axis, detaches all lateral ligaments, and second, on its horizontal axis, detaches the ligaments above and below. The two movements together sever the ligaments throughout the entire circle. After the second rotation the detacher is returned to the primary position, and then removed in the reverse order of its introduction.

9. The fixation forceps, having been used while making the corneal incision, while doing the iridectomy, and while using the detacher, must now be laid aside. In one hand the operator now takes the Daviel spoon, with the back of which to make pressure on the lower part of the cornea for the delivery of the detached cataract. In the other hand he takes the cystotome, with the shank of which to make counter-pressure, if necessary, until the cataract begins to emerge, at which moment, while keeping up the pressure, he ceases to make counter-pressure, and with the point of the cystotome transfixes the cataract from behind, and lifts it out of the eye. The moment after transfixion all pressure is removed, thus lessening the risk of escape of vitreous.

10. If any iris is in the wound, it is replaced; the edges of the corneal cut are coapted and the conjunctival flap, if any, is smoothed out. Now the operator takes the lid elevator in his own hand, and gently places the lid in its normal position.

11. The after-treatment is that usually followed, and is directed toward the prevention of infection of the corneal wound and to guard against iritis. Should either of these conditions arise, as they may after any operation for cataract, they must be vigorously fought with our best and most approved agents.

In the eight months since the detacher became a finished instrument, thirty-eight operations with it have been done in Nashville, nineteen by myself, twelve by Dr. Hilliard Wood, four by Dr. M. M. Cullom, two by Dr. George H. Price, and one by Dr. J. P. Crawford. The cases are too few and the time covered too short to justify a detailed report of results. Suffice it to say that I am satisfied, and that my local confrères share with me this satisfaction. My operation has been honored in its own city, which means much in its favor.

In closing, I may be allowed to make the following claims:

1. The detacher is my own invention.
2. The method of fixing the eyeball through three vital steps of the operation is mine.
3. The method of detaching the cataract is mine.
4. The method of doing the iridectomy is mine.
5. The method of transfixing the cataract, from behind, as it begins to emerge, and lifting it out of the eye, the pressure ceasing after the transfixion, is mine.

Before using my detacher and applying the methods as set forth above, on the human eye, free use should be made of fresh pigs' eyes. On pigs' eyes my operation will not suffer in comparison with the Smith Indian operation, or with any other operation. On the human eye, whether the cataract is ripe or unripe, the operation set forth in this paper is the easiest, the safest and the best.

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MY EXPERIENCE IN THE OPERATION FOR CATARACT *

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As so much is being written on the extraction of the lens in its capsule by those who number their operations by thousands, as do some operators in India, a few words may not be out of place by one who belongs to the large majority of operators in this country who cannot truthfully report forty cases in one year. I shall mention, therefore, some of the dangers which have beset my path, not in the more difficult operation above mentioned, but in the methods of extraction as usually made.

After practicing medicine and surgery in private, and as surgeon in the army for nearly three years during the civil war, I studied eye diseases under the late Dr. E. Williams of Cincinnati in 1867, and entered his office

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

later as his assistant. Dr. Williams, according to the late Dr. Samuel D. Gross of Philadelphia, was the first regular physician in the United States to make eye diseases a specialty. Others treated eyes long before his day, but they practiced medicine and surgery also. While with Dr. Williams I took the names and records of every patient on whom he operated for cataract (and have them still) and they number but fifty-two in one year. His patients were very numerous; they came from our northern lake region to the Gulf of Mexico; from near Pittsburg to the Rocky Mountains. And it should be remembered that eye specialists were comparatively few in those days; now they are almost as numerous as laparotomists.

When in 1871 I located in Indianapolis there was but one regular practitioner who did much eye work, but he did not confine his practice thereto; nor did I know of another in the state. Now I know of no town in the state with a population of fifteen thousand that has not two or more specialists on eye, ear, nose and throat. From these figures how many do you suppose extract fifteen cataracts in one year? Would such men dare to extract the lens in its capsule?

The late Dr. George C. Harlan of Philadelphia tersely described the necessary qualifications of an eye surgeon as follows: "He must have good vision, a steady hand, coolness and judgment in difficulties and a full appreciation of his responsibilities." Other eminent men have added that he should cultivate ambidexterity, and by all means practice medicine and surgery for several years; then study under a master in eye work before beginning this highly important specialty.

Senile cataract (as the name implies) usually occurs in elderly persons; hence the importance of a very careful investigation as to the general physical condition of the patient before operation. Thirty-three years ago I operated on a farmer whose health seemed to be excellent, and he so reported it. The combined extraction was made; the man did well; on the twelfth day he could read ordinary print with a plus glass; but on the fourteenth day he had a severe chill, followed by a high fever with vomiting; this continued for some days and started an inflammation of the uveal tract, which caused the loss of his eye. Unfortunately he had failed to inform me that he had suffered from malarial fever the previous autumn. Three years later the lens of his remaining eye was ripe, when I made a preliminary iridectomy, and extracted it two months later, but before doing so satisfied myself that he was in no danger from malarial poison. The man is now past his eightieth year and can see to read very nicely. I encountered a similar case a few years after. A woman not 50 years old was brought to me by a physician from a neighboring town for operation. He reported her health as being the best. Her eye was examined in every way and found to be in favorable condition for operation. The extraction was done and the woman did well until the seventh day; then, when I called to dress the eye, she was raving, had torn the bandage off, and declared that the woman who kept the boarding house was trying to poison her. She grasped my wrists and said that she would not release me until I took her from the house. With the help of a physician she was taken to a hospital, where she died in a few days from typhoid fever. I learned soon afterward that before she came she had been nursing her husband through a very severe illness from the same disease, and that she had made him promise that as soon as he was better he would have her cataract removed.

One other patient I must mention. A farmer, over 70, was operated on and did well until the tenth day, when he complained of a severe pain in the calf of his leg on the opposite side to the diseased eye; in a few days the limb became cold, gangrene soon came on and the leg was amputated. When the surgeon removed the tourniquet no arteries required ligation, as they were calcareous. The man died in a few weeks. Some of his friends said that the operation for cataract caused the trouble in the leg. Others said "No," as it was on the opposite side. These cases show the importance of a thorough physical examination before cataract extraction.

I have had very poor ultimate results in patients addicted to the use of whiskey ten or more times a day for years. The operation may be faultless and the sight very good for a short time, but congestions and subacute inflammations hang on so long that vision is much impaired and often lost.

Women who suffer much for years after the menopause with flushed faces and eyes are not good subjects for cataract extraction. One of these is now under my care. She was operated on by the combined method two months ago, went home able to read, and was given my usual instruction to be very careful in no way to expose the eye for four weeks. When she reached home she found her husband very ill with appendicitis, from which he died. She was up with him night and day for ten days, getting but little sleep. I saw her one month afterward, with vision only 6/CC. I used the fluidextract of ergot internally, and her vision, she reports, is much better. Ergot has accomplished much in several of these patients.

In 1895 a retired capitalist from a distant city, who was blind in both eyes, was operated on—simple extraction. He did well and was ready and dressed for the train when he fell to the floor of the hospital and was unconscious for a short time; he was taken home on the following day and died shortly afterward. A dear old lady, aged 70 years and blind in both eyes, had a similar result after a simple extraction. When her husband and daughter came to take her home I put a glass on her to show the family that she could read; they were delighted, but their joy was soon turned to mourning. She was about to step into the carriage, fell to the pavement and was taken back to the hospital, where she died in one hour.

These cases depress one very much, and it is impossible to convince the friends and relatives that the operation was not the cause of death. I recall two simple cataract extractions in large fleshy women, both of whom had profuse retinal hemorrhage after faultless operations, and after the bandages were applied, and the patients were in bed; of course the eyes were lost.

I cannot conceive of anything which makes the operator feel worse than do these unlooked for results which so injure his reputation.

Three of my patients became maniacal in from two to five days after the extraction; they tore the bandages from their eyes and raised quite a disturbance; two of these were women, one a vivacious Irishman; I looked for bad results, but they did well. Some patients have been troubled with illusions and hallucinations. One of these was the wife of a poor physician in a small town, well educated and very fond of books; she had been blind for several years and had led a lonely life. I made a simple extraction on one eye, which gave her excellent vision. Some time after she returned home and found that she could read fine print; she was so happy that it slightly unbalanced her mind. She then sent to inquire

of me if I ever prescribed glasses which enabled my patients to see their friends in the spirit world, as she did. What a gift this would be!

Others I have treated have returned home in two or three weeks delighted with their improved vision, but a few weeks later letters have been received concerning their failing sight, and when they came to me later I have found inflammation of the chorioid which, in spite of all treatment, has ended in blindness. Others have not only lost the eye from which the cataract was removed, but also the second eye from sympathetic iridochorioiditis.

Glaucoma is another dread monster which has occasionally attacked my patients years after a successful extraction resulting in good reading vision. I now have a patient, a woman, aged nearly 70, from whose left eye I made a simple extraction seven years ago, and did the same on the right eye nearly four years after. She had very white hair and light, soft blue eyes, the pupils were so round and natural that no one could see that an operation had been made. I felt very much pleased with the result, as did the patient. Recently she came to see me when I found the right eye very hard and the vision reduced to 10/CC. Myotics failed to reduce the tension and, to my great regret, an iridectomy had to be made. The eye is now better, vision is 16/C, but as to the ultimate result time alone can tell. Other patients have had hyalitis with dense floating bodies in the vitreous, some have suffered from chorioidal and retinal exudates and hemorrhages many years after ideal extractions. All operators long engaged in this work must have had many like results.

Knives with convex edge (1); and with concave edge and rounded back near the point (2).

For ten or more years I operated on both eyes if everything was favorable and the patient desired it. One of these patients was a farmer, aged nearly 88, tall, wiry-looking, straight as an arrow, who was a soldier in the war of 1812. His eyes were in the best condition for operation. I extracted both lenses with iridectomy. It was before the days of cocain; he did not squeeze his eyes or move a muscle during the operation, nor did he have one bad symptom in either eye. He remained at his daughter's home in the city for five weeks, when he returned home, fitted with glasses and able to read small type, which he continued to do until a few weeks before his death, which took place at the age of 106 years and 3 months. When I learned that one of the best operators in the land had lost both eyes of a patient from a double cataract extraction, I received such a shock that I immediately ceased to operate on both eyes at one sitting; yet, strange to say, in these 11 patients which I recall (doubtless there are more on my books) I did not have a bad result, in one of these 22 eyes, in which the vision equalled from 20/L to 20/xx in one case. When I think of this unwise proceeding I almost tremble. Surely "the wind was tempered to the shorn lamb."

For a few years I operated on one eye if ripe, but only partially so in the other; I do so no more, but refuse to operate on one eye when the patient can read with the other.

PRELIMINARY IRIDECTOMY

This I found to be the safest of all methods in the treatment of cataract. With it I have saved many eyes which would most certainly have been lost had I attempted extraction; especially is this the case when the vitreous is fluid as water. In some of these I have couched the lens subsequently. One was as follows: A frail little woman, past the forty-fifth year, suffered from trachoma in early childhood; she had been cured, but had lamellar cataract in both eyes; she was able to read for years when the back was to the light, but when I saw her the periphery of each lens was opaque. I made a small iridectomy on one eye when some fluid vitreous trickled out. In a few weeks I couched the lens, and did the same in the other eye some months later. She was able to read with either or both eyes for years, but I learned that she had to be operated on later for trichiasis by an esteemed member of this society who resided near her in a distant city. She called to see me after a few years, when I saw the lenses floating in the vitreous humor as in water. In several cases patients have consulted me who had lost one eye from an operation made by able men in distant states. A small iridectomy was made when a rush of very fluid vitreous escaped. On the fourth day the chamber was clear and revealed a shrunken lens with a narrow artificial pupil above, which enabled the individual to go about the streets and discern large letters; I did not touch the lens afterward, but "left well enough alone."

We all know that a simple iridectomy, when properly made, rarely gives any trouble, but an iridectomy combined with the extraction of the lens is a very different matter, as the iris is then the main factor in inflammations and often causes the loss of the eye. With the iris healed and no synechiæ the subsequent extraction is nearly always successful. It is my firm belief that if a preliminary iridectomy is made and followed in two months or more by the extraction of the lens our losses would not exceed 1 per cent.

EXTRACTION OF CATARACT IN THE CAPSULE

This is the most difficult and dangerous of all methods. I have done the operation on two patients (both of whom were preachers), but it was not intentional. In both of these a large corneal flap was made for a simple extraction. In one the lens presented immediately after the corneal section, fell out and rolled on the floor, the iris was replaced and the patient recovered without one untoward symptom. The second case only differed from the first in the turning of the lens on its axis and requiring a little assistance in its delivery. In this one, when I saw the unduly gaping wound, I feared a loss of the contents of the eyeball, but not a particle of vitreous presented, the iris was replaced and a beautiful round pupil remained. Both of these men had good vision for years. Here, again, there is a great difference between delivering the lens in its capsule, when from unknown causes it has become loosened from its supports, and our efforts to break up these attachments.

No one should attempt this most difficult operation short of placing himself under a master who has become skilful after thousands of operations. If we cannot do this, we should by all means refer patients who desire this method of operation to these experts. I flatter myself that I have had the usual percentage of success in cataract extraction, as heretofore practiced by the majority of ophthalmologists. But I could not be

induced to make this operation short of a thorough training at the hands of those who have operated successfully on thousands of eyes. If the average man in the beginning attempts it he will soon discover that he not only ruins many eyes, but does himself great injury. How many of us would like to have this operation done on ourselves?

When I first commenced eye surgery I made the mistake of opening the speculum too widely and lost vitreous in a few cases by so doing. One cannot be too careful in selecting this instrument. It should be light, well curved, the spring not too strong, and one which can be quickly removed. I commenced with the Graefe right and left, but I have since found the one used by Dr. H. Knapp far better. For years I used the Graefe narrow, straight cataract knife, but fifteen years ago I had special knives made, some with ivory and others with metallic handles (Fig. 1). Knife 1, being convex on the edge, passes across the chamber and makes the corneal section easily and smoothly. It can be kept in order by the operator and retains its edge longer than does the very narrow straight knife, and, lastly, there is no danger of passing into the chamber the wrong way. Knife 2 has a concave edge and rounded back near its point, and I have found it very useful in preliminary iridectomies when no anterior chamber exists; one can then make the section with it just as narrow as he wishes. It is also useful in very severe glaucoma with no anterior chamber, widely dilated pupil and exceedingly narrow ring of iris. It can be worked across the chamber by passing its rounded back against the iris, thereby avoiding transfixing the iris or wounding the lens capsule as we are liable to do with the angular keratome.

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ABSTRACT OF DISCUSSION

DR. HILLIARD WOOD, Nashville, Tenn.: My experience with this method of Dr. Savage is confined to 13 cases in which I have operated during the past fall and winter. I shall divide what I have to say about this method of Dr. Savage into (1) the objections and (2) the advantages.

1. Objections: A. It involves an appreciable increase of traumatism over the usual extracapsular extraction; and as a result of this a slight increase in the reaction following the operation. B. It is not suitable in the case of very nervous, or restless patients, because of the increased danger of the loss of vitreous. C. It necessitates, in my hands at least, an iridectomy, which involves a mutilation of the iris and a permanent deformity of the pupil. D. The most serious objection is the production of vitreous opacities. In only 3 of my cases have I been able to examine the vitreous some weeks after operating and in each of these there were floating opacities in the vitreous. These opacities were not dense, and the vision was fairly good; still the opacities were present in each of the 3 cases examined. I understand that such opacities in the front layers of the vitreous are frequently met after the Smith operation, so they would seem to be common to intracapsular methods of extraction.

2. Advantages: A. It enables one to remove unripe cataracts, thus avoiding the tedious delay required for ripening. It is, in my opinion, safer to remove the unripe cataract in its capsule than to resort to artificial ripening. B. Intracapsular extraction removes the possibility of secondary capsular opacities, an advantage which is manifest. The operation is not dangerous or difficult, for in fifty operations done by five operators in our city there was no failure that could be attributed to the method of operating.

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind.: Too many operators with elastic consciences, who are known to have limited opportunities for operative work, glibly talk of their cataract operations by the hundreds and thousands and report such good results that the young and inexperienced operator is inclined to look on the cataract operation as one devoid of much risk and usually attended with good results, if the operation is properly performed. Altogether too many operators are inclined to put the best side out; to report their successes and purposely to neglect to report their failures. This has a tendency to lead the inexperienced operator to draw wrong conclusions and even to accuse himself falsely of error because his own results do not come up to the standard of those who report only their successes.

Loss of vitreous, caused by the squeezing of a speculum by the patient's lids, has led me to abandon the use of the speculum and to use a narrow lid-elevator which absolutely prevents squeezing of the lids. The frequency of prolapse of iris and glaucoma following the simple operation as observed in patients operated on by others as well as in the few operations of the kind which I have done has led me to adopt the combined operation, or extraction following some weeks after a preliminary iridectomy, as being the safest. The manner of incising the capsule has seemingly had but little effect on the necessity of doing a secondary operation in order to secure the best vision, and I do a discission in fully 50 per cent. of my cases. A few extractions of cataract in the capsule, done without intent, and with excellent results, have not led me to think that such an operation, done through intent, should be the operation of choice. My inspection of perhaps twenty-five patients on whom the so-called Major Smith operation had been performed, in whom fully 25 per cent. had suffered loss of vitreous, has also strengthened my belief that extraction in the capsule should not be the operation of choice for the average American operator who has to contend with a class of people far different in temperament and social and physical condition from the class of people on whom Major Smith and others in India operate so successfully. No doubt the fact that Major Smith has operated on thousands has given him an experience and a superior skill which can never be approached by any American operator, who is fortunate if he can number his cases by the hundred over a long series of years. The majority of the cataract patients in America are operated on and will continue to be operated on by the average eye surgeon whose experience is confined to less than twenty-five cases per year. To the average man, therefore, a cataract extraction becomes a grave responsibility and he should not blindly grasp untried methods, or methods, though seemingly successful, that are only so because carried out by men who have had experience which but few can hope to duplicate, even in a small degree. I am not prepared to believe that extraction of the lens in its capsule, as a routine practice, is as safe a procedure, either during the operation or during the healing process, as the cataract operation as ordinarily performed by reasonably skilled operators, and the best results in any case will not be secured unless the operator takes the time and trouble to study thoroughly and to prepare carefully his cases. Emphasis should be placed on the point brought out in Dr. Thompson's paper that not only should the eye of the patient be studied, but the patient's general health and temperament should be carefully investigated before a cataract extraction is attempted, if we are to secure the highest element of success. When and how to operate should be decided with a view not only to present, but to ultimate effects.

DR. J. L. THOMPSON, Indianapolis: After my paper had gone to the printer, Dr. Greene, of Dayton, Ohio, kindly invited me to witness the Smith-Indian operation, on several patients. He also showed me a large number of old soldiers at the National Soldiers' Home, and several private patients, on whom he had made this operation, from one week ago to many months previously. In them I found pupils clear, no threads of capsule, no synechia, and with an acuity of vision equal to 20/xx in many of them. His corneal incision was made with one sweep of the knife, which is shaped like the one which is described in my paper as No. 2, except that his blade is one-fourth of an inch longer, which is necessary when one makes the section entirely in the cornea with but one sweep, if one needs no conjunctival flap.

This is certainly the ideal operation, but should be made only by those who have been thoroughly drilled, and have

operated in a country where cataract patients are very numerous and operators few. I have operated on many hundreds of cataracts successfully, but shall not attempt this method. Had I known of it before I sustained a fracture of the neck of the femur some years ago, I would have sought an introduction to Major Smith, visited India, and placed myself under his instruction; but as this is now out of the question, I shall, as I have already commenced doing, send my patients who have immature, nuclear cataract to those who have taken such instruction and have operated in India under the eye of its originator.

Dr. Savage's "cataract-in-capsule extraction by a new means and a new method," to me, is the most complicated and dangerous of all the methods of extraction, except at the hands of the very able originator. It requires two skilled assistants, and a "detacher," which is manipulated inside, instead of outside, the cornea as is the Smith method. But it is comparatively an untried operation. Dr. Savage reports only thirty-eight cases by four operators in eight months. Major Smith reports over 2,000 in six weeks, and 20,000 already made.

"On pigs' eyes," says Dr. Savage, "my operation will not suffer in comparison with the Smith-Indian operation or with any other operation." It is not pigs' eyes, however, and especially dead pigs' eyes, that we are discussing. Dead pigs tell no tales. I have operated on eyes taken from pigs, and sheep, and on many human eyes, very soon after enucleating them; but have derived very little benefit therefrom. The pigs should be live pigs in order that the ultimate result may be followed up. Again must I emphasize the advantages of preliminary iridectomy. It tells us all about the behavior of our patient, and we have no hemorrhage in the anterior chamber to obscure our view. With the iris healed, we can operate with greater confidence of success.

We should urge the advantage to be gained by preliminary iridectomy as strongly as did Moses the teaching of the law.

DR. D. W. GREENE, Dayton, Ohio: I had not intended to say anything on the Smith operation, but Dr. Wood and Dr. Thompson have referred to it, and I would not be true to my obligation to that great man, Colonel Smith, for whom I entertain the most profound respect, if I did not say a word in defense of his operation, because I believe it is more rational and safe than the so-called operation of Dr. Savage, notwithstanding his five modest claims of originality.

Several instruments have been devised by different men at different times embodying all the principles of the so-called detacher. They may vary in size, in shape, but the principle is the same in all of them. It should be the discovery of new underlying principles, not simply modifications of old instruments, which are required to introduce new operations.

I have no practical knowledge of Dr. Savage's operation, but we are making history here. What goes on record without a protest from some one will have the silent endorsement of this Section. I am sorry to be the one to dispute with my friend, Dr. Savage, the claims he makes for his so-called operation, but I do not think that he has a single peg to stand on, so far as his claims go toward having an original operation. He catches the internal rectus muscle, instead of catching the eyeball below. There is not much difference in that from what we all do. He has two assistants, which is an objection. I think that his method of impaling the cataract on the cystotome is objectionable because the capsule is so liable to rupture when pricked. In a paper written in 1866 Lucca of Naples described his method of delivering cataract with a flat probe, which he passed over the anterior surface and underneath the iris to dislocate the lens, and afterward delivered it by pressure. The instrument of Gradenigo, a zonulatome, is intended to cut the zonula and deliver the lens afterward. I bought the instrument in Paris, where it has been made by Luer for ten years past. The instrument of Professor Basso of Genoa has all the curves of Dr. Savage's instrument, even the curve to fit the anterior surface of the lens, which is for all purposes a detachery. He calls it a reclinater. Any person who has had the slightest experience with intracapsular operations knows that the slightest tear in the zonula is all that is necessary. If it is torn at one point the rest easily follows by the pressure in delivering the lens. In other words, it tears itself. In 1907, at the Atlantic City session, Dr. L. Webster Fox called my attention to an instrument which, so far as I am able to see, barring a slight difference in size and lacking a curve in the shank, is the same as Dr. Savage's detacher. It is fair to say that at that time Dr. Fox intended it for a zonulatome. I see another objection to Dr. Savage's so-called operation in that when he has detached the cataract he is only half way through the operation. He still has to deliver it. By the Smith method the whole process is completed by external manipulation and often by one movement. That, I think, is a point worth considering. There are some good points about the operation, but I think that there are many objections to it, and I would have to witness a demonstration of its advantages over the Smith operation before I will be willing to pass an instrument inside of the eye and be at the mercy of the patient even for a few seconds.

DR. L. WEBSTER FOX, Philadelphia: A cataract operation should always be approached with the feeling that one is about to perform the most delicate operation in surgery and one should try to realize its difficulties and obstacles. All ophthalmic surgeons should welcome a new method by which these obstacles may be lessened. I am not convinced that Dr. Savage has accomplished this with the instrument which he has shown us. In his dextrous hand the dislocation of the lens without loss of vitreous and the expression of the lens in its capsule may be accomplished with ease; but is it a safe method for the average operator to adopt? On mechanical lines, I fail to realize the justification of his claims, but still I am open to conviction. The method is not new and Dr. Savage does not lay claim to any new thought other than the fact that this instrument in his hands robs the "extraction of the lens in its capsule" of many of the difficulties found in Smith's method. Gradenigo and Delgado also devised instruments for the same purpose, and about five years ago I attempted the same method with an instrument modeled after the cystotome of Jaeger, and at a later date Dr. D. W. Greene and myself experimented with various instruments which in shape were exceedingly like Dr. Savage's instrument, the curve in the shank near the hook in the Savage instrument making the difference and giving it its originality. The results being negative, we discontinued the use of the instrument. If Dr. Savage can dislocate a cataractous lens with ease and safety, that is, without disturbing the iris and without loss of vitreous, as his writings and arguments imply, then he has added something to the technic of cataract operations which many of us will welcome. I must still be convinced, however, by demonstration, that this instrument can be used safely in the narrow confines of a corneal or scleral incision with the upper eyelid drawn forward with a Smith hook, thus more or less obstructing the field of operation.

If, after the cataract has been broken away from its suspensory ligament, it can be expressed through this small opening in the cornea then Dr. Savage has acquired a dexterity which the majority of operators have not attained.

DR. G. C. SAVAGE, Nashville, Tenn.: While Dr. Fox does not remember it, I suggested the corelysis instrument to him in his office on my return trip from the Boston meeting, June, 1906. The May *Bulletin* of Meyerowitz has a picture of my instrument, giving Dr. Fox the credit for its invention. Meyerowitz has taken all the blame on himself. He said that he got the wrong name on the right instrument, or words to that effect.

Dr. Thompson is wrong in speaking lightly of operations on pigs' eyes. Without the use of pigs' eyes and the experience gained with them I would not have attempted my operation on a human eye. It is out of that experience that one learns just how to make the double movement of my detacher.

In answer to Dr. Greene, you can tear loose ligaments with my detacher, and you tear at least 75 or 80 per cent. of it with the first of the two movements. Therefore lighter pressure attends the second movement. My first instrument was made after a design drawn on the edge of my copy of the program at Atlantic City, 1909, and I have in my hand the original drawing. This was made while Greene was discussing the Smith operation. I have it marked 6 mm. for each curve, which is the ideal length of the curve; 7 mm. is too large and 5 mm. is sometimes too small. I have all three and I would

advise you to have all three. Use No. 7 on pigs' eyes and 5 and 6 on human eyes. There is no resemblance between my instrument and any of those exhibited by Dr. Greene. Preliminary iridectomy is good; I believe a preliminary iridectomy with preliminary detachment with my instrument would be almost an ideal operation. I have less irritation in the eyes after my operation than I have ever had since I have been operating. Eyes at the fourth day often look as if operated on four weeks before. And I want to tell you further that I turn the eye loose on the third day with only a pad of gauze in front of it. I let the patient wink, move the eye up and down with the other eye at the end of the third day, and I have no hesitation in doing it. I keep both eyes bandaged for two days. Furthermore, I cleanse the eye, but without looking at it, at the end of the first day. I dress the eye twice on the second day and afterward two or three times every day for two weeks. With a small iridectomy you are likely to have prolapse of the iris, unless you use atropin.

Have dead pigs' eyes by all means first. You will disobey my directions if you do not go to the butcher and get an abundance of pigs' eyes, not for the purpose of learning to make the corneal incision, for that you know, but to learn just how to make the double manipulation with the det[illegible]r. You will in that way acquire confidence for doing it o[illegible]e human eye.

As to floating opacities, I have had them in some of my 27 cases, but I am sure they were there before, because the eyes had no irritation whatever about them. I have not been as lucky with all my cases as my confrères. All of their 23 patients had good recovery. I shall give you at some time the history of the cases. One of my cases was lost with a chorioidal hemorrhage. The patient became sick at the stomach a few hours after the operation and vomited, and the chorioidal hemorrhage thus caused ruined the eye. In one other case that white fluffy formation described by Dr. Knapp occurred in an eye free from irritation otherwise. The fluffy appearance disappeared, but the eye was not useful. I need not go into any further detail, but I want to call attention to what Dr. Wood has said, that in not one out of fifty eyes operated on is there one thing to be charged against the new operation itself.

ONE OF THE FUNCTIONS OF THE DUODENUM *

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Last year J. W. Draper Maury[1] published the results of his study on intestinal obstruction based on observations made on 400 lesions, experimentally produced.

His observations led him to suggest the idea that the duodenum (dogs), independent of the secretions thrown into it from the stomach, liver, and pancreas, secretes something which is essential to the life of the animal. Any interference with this hypothetical secretion soon ends in "physiologic death." He also suggests that this protective secretion is furnished by the first 35 cm. of the duodenum and that its presence in the lower portion of the intestine will suffice to prevent death.

Independent of Maury, and while working on an entirely different problem, which, however, involved certain surgical operations on the pancreas, the bile-ducts, and the duodenum, I observed that whenever the operations involved the duct-bearing portion of the duodenum the mortality was very high without any apparent cause. This observation led me to inquire further into the cause of these seemingly unexplainable deaths.

Previous to this observation, and while studying the effects on dogs of long-loop gastro-enterostomies (35-40 cm.) with the pylorus closed, certain definite and characteristic changes were noted which seem to have more or less relation to the question in hand. This relationship may well be discussed here.

With the pylorus permanently closed, a gastro-enterostomy 12 to 15 cm. from the pylorus results in no untoward effects on dogs; but if the gastro-enterostomy be made 35 to 40 cm. from the pylorus conditions are altogether changed. An animal so operated on will soon recover from the immediate effects of the operation. Generally, for two or three days following the operation, there is more or less vomiting, and the stools become light-colored, soft, and fatty. But the most characteristic effect is a gradual loss of flesh. The animal will eat ravenously and drink copiously but to no effect in maintaining its body nutrition. It will continue to lose weight and will die in from five to six weeks in an extreme state of inanition. In fact, animals after closure of the pylorus and a long-loop gastro-enterostomy, behave much the same as they do after total extirpation of the pancreas; that is, the stools become light-colored, soft, and fatty, and the body nutrition cannot be maintained. After the former operation, the urinary findings indicate a condition of gradual starvation, while after the latter a diabetic condition. After the former, the fats are only partially digested and partially absorbed and the digestion of the proteids (meat) is somewhat interfered with; after the latter, the fats are not well digested and only partially absorbed and the carbohydrates are excreted in the urine unused. After a long-loop gastro-enterostomy dogs will live, on an average, about a week longer than after extirpation of the pancreas, but the degree of inanition is correspondingly greater.

As no very satisfactory explanation can be offered for these phenomena, it is permissible to enter the field of speculation. In the first place, as already pointed out, it makes a very decided difference whether the gastric discharge into the intestines is 12 cm. from the closed pylorus or 35 cm.; the former producing no effects, while the latter is followed by the changes described above. At first, one might be tempted to offer as an explanation a probable break in the chain of interactions which takes place in the duodenum, in which the gastric, liver, pancreatic, and duodenal secretions are all more or less interested, and which results in the formation of certain substances, as secretin, trypsin, etc., which either stimulate certain glands, as does secretin, or produce activated substances such as trypsin. Such a break might well be brought about by closure of the pylorus and by establishing a gastro-enterostomy too far from the pylorus to permit the acids from the stomach to act as a biliary stimulant, or to enter into the formation of secretin or other yet unknown activating substances. Such a condition of affairs in the duodenum might account for the digestive derangements, but no more than to close the pylorus, tie off the common bile duct, and drain the gall-bladder, tie off the pancreatic ducts, and to make a short-loop gastro-enterostomy. But even under the conditions imposed by this combination of operations, dogs do not die of starvation; but will live and enjoy a good degree of health. If this be true, then we are forced to assume that the presence of the gastric contents in the upper 12 cm. of the small intestines incites the formation of some substance (secretin or something of a similar nature) which is necessary for the health of the animal, and which is not formed if the gastric discharge is 35 to 40 cm. lower down.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Maury, J. W. D.: Am. Jour. Med. Sc., 1909, cxxxvii, 725.

To inquire more fully into the merits of such a hypothesis the following series of experiments were undertaken: As a number of operations with certain modifications were made to demonstrate each point, the experiments will be described in terms of the type of operation used.

TYPE 1.—Operation: The pylorus was closed, the common bile-duct tied off and the gall-bladder drained, and both pancreatic ducts tied. A gastro-enterostomy was made 12 cm. distal to the pylorus. Dogs so operated on lived and enjoyed comparatively good health.

TYPE 2.—Operation: The pylorus was closed, the duodenum was closed 12 cm. from the pylorus, thus making a duodenal pouch 12 cm. long, and a gastro-enterostomy was made just distal to the duodenal closure. The duodenal pouch was drained to the outside. In some of the operations of this series the common bile-duct was tied off and the gall-bladder drained, and both of the pancreatic ducts tied off. Animals so operated upon lived only from forty-eight to seventy-two hours. It made no difference on the length of life whether the bile and the pancreatic juices were allowed to enter the duodenal loop or were drained directly to the outside. In all of the experiments of this type the dogs recovered promptly from the immediate effects of the operation and to all appearances were in good condition for forty-eight to seventy-two hours following the operation, when they would suddenly drop dead. All cases in which there was the least semblance of beginning sepsis were counted out.

TYPE 3.—Operation: This was the same as in Type 2, with the addition that the jejunum, just distal to the gastro-enterostomy, was brought up and anastomosed into the duodenal loop so that the loop drained into the upper part of the jejunum. After such an operation the contents of the stomach, after being discharged into the bowel through the gastro-enterostomy opening, would have to pass around by way of the duodeno-jejunal anastomosis and there meet the duodenal secretions. Animals so operated on lived and enjoyed a comparative degree of health. Here also the results were irrespective of the presence of the bile and the pancreatic juice in the duodenum. Six observations were made on this type of operation.

TYPE 4.—Operation: The pylorus was divided close to the stomach and the stomach opening closed; the duodenum was divided 12 cm. from the pylorus and the distal end closed, and a patch about 1.5 by 3 cm. was taken from the inner side of the duodenum with as little interference with its circulation as possible and transplanted into the bowel a convenient distance from its closed end. The remainder of the duodenum was resected, the common bile-duct tied, the gall-bladder drained and the duodenal portion of the pancreas removed. A gastro-enterostomy was established so as to permit the gastric discharge to come in contact with the transplanted patch of duodenum. This type of operation was quite difficult; but all the subjects (four) in which the patch united to form a part of the intestinal wall lived. The results here obtained were contrary to those obtained by the extirpation of as much as 12 to 15 cm. of the upper part of the small intestines.

TYPE 5.—Operation: These operations consisted in closing the bowel 12 cm. from the pylorus and of making a gastro-enterostomy, in some of the experiments just distal to the duodenal closure, and in others 35 to 40 cm. from the pylorus. In most of the operations the common bile-duct was tied and the gall-bladder drained, and the pancreatic ducts tied. The purpose here was to permit the duodenal secretion to pass upwards into the stomach and hence be discharged into the intestines through the gastro-enterostomy. The animals lived after these operations, irrespective of the position of the gastro-enterostomy.

It is obvious from the results of these experiments that the total extirpation of the duodenum is incompatible with life longer than about seventy-two hours. A number of investigators,[2] however, while studying the relation of the duodenum to sugar metabolism, claim to have made total extirpations of the duodenum presumably without causing death. Without attempting to discredit their results, it is altogether probable that they did not remove quite enough of the duodenum to obliterate all of its secreting surface. In some instances this will require about 15 cm.

About the only deduction that can be drawn from these experiments is that the duodenum exerts some influence, probably through the agency of a secretion, the removal of which from the body is compatible with life (dogs). So far as we know, Brunner's glands are the only structures located in the duodenum which might be capable of such a secretion, and indeed it is quite tempting to credit them with a specific secretion, the nature of which is yet unknown. In this connection, the crypt of Lieberkühn might play a rôle, but inasmuch as they are found in the jejunum this seems hardly probable. The fact that the fluid collected from a duodenal pouch differs little, or not at all, from the ordinary intestinal juice, in that it is a thin, clear, alkaline fluid, possessed of very feeble digestive powers, and when injected into the circulation in doses of from 10 to 20 c.c. exerts no effects at all, not even on the blood-pressure, might suggest that it acts on some other secretion formed lower down in the bowel, forming an activated substance which is necessary to life. The fact that the animal always lives whenever the duodenal secretion is permitted to drain into the part of the bowel below, by means of an anastomosis of the jejunum into the duodenal pouch, or by a rubber tubing connecting the duodenal pouch with the intestines lower down, or by permitting the duodenal secretion to pass into the stomach and be discharged into the bowel with the stomach contents through a gastro-enterostomy, argues further for some such conclusion.

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ABSTRACT OF DISCUSSION

DR. IDA E. HYDE, Lawrence, Kan.: I should like to ask Dr. Matthews about the effect of the injection of an extract of the duodenum.

DR. WILLIAM CARPENTER MACCARTY, Rochester, Minn.: I should like to ask Dr. Matthews if the dogs which died showed any dilatation of the stomach or duodenum, and was there an extensive fatty degeneration of the liver?

Dilatation of the stomach and not infrequently the duodenum occurs in a certain number of cases which have undergone operative procedures in the region of the pylorus or bile passages. I have seen definite, apparently paralytic constrictions of the duodenum at autopsy on patients dying after operative measures on the gall-bladder and bile-ducts. If the patients who are suffering from this acute dilatation of the stomach and duodenum are not carefully watched and properly treated by washing out the stomach a large percentage of them die and present an extreme fatty change in the liver. The change in the liver is apparently due to some toxic substance absorbed from the distended bowel. The question arises: Is this substance the secretion of the stomach, duodenum, pancreas or liver itself, or some bacterial product arising in the stagnant contents of the bowel? I should like to know if Dr. Matthews can throw some light on this subject.

DR. J. F. HULTGEN, Chicago: In considering this subject in a general way it seems to me that there are segments in the

2. Cimoroni, A.: Lo Sperimentale, 1908, lxii, 523; Tiberti, N.: Lo Sperimentale, 1908, lxii, 479; Minkowski, O.: Arch. f. exper. Path. und Pharmakol., 1908, lviii, 271; Pflüger, E.: Arch. f. d. ges. Physiol. (Pflüger's), 1907, cxvii, Nos. 3, 4, 5, 7; 1908, cxix, No. 5; 1908, cxxiii, 233; Lauwens: Arch. f. d. ges. Physiol. (Pflüger's), cxx, 623.

gastrointestinal canal a good deal like the segments in the nervous system, as exemplified by the cutaneous distribution of the nerves; so I think that we can speak of metameric zones in the intestine, as well as in the skin. However, Starling and Bayliss have found that the secretin produced in the duodenum acts on the musculature by way of the circulation, and that it is a chemical product. I should like to know whether Dr. Matthews' experience agrees with that or not. There is no question that there is a segmental function in the intestine, the anatomic basis of which we have not been able to ascertain. I should like to ask Dr. Matthews how he stands on the question of gastroenterostomy from the view-point of the physiologist.

DR. W. G. MCCALLUM, New York: I should like to know whether Dr. Matthews observed any signs of injury to the nervous system in these regions after any of his operations—whether any convulsions followed them.

DR. J. T. PILCHER, Brooklyn: I should like to ask whether, after the speaker closed off the duodenum and made a fistula from the duodenum externally, and the dogs have become emaciated, he has tried to inject a stimulant such as hydrochloric acid through the fistula in the duodenum, to see whether it would activate a secretion there, and whether there was a secretion further down in the gut and where the secretion was reabsorbed? I have had some experience in experimenting on the pancreas, and have found that a number of the dogs died after ligating the entire blood supply as it comes into the duodenum; and it has seemed to me that this might explain the cause of death, through the lack of direct reabsorption.

DR. S. A. MATTHEWS, Chicago: In reply to the questions of Dr. Hyde, I can make no definite statements. So far I have not studied the effects of introducing an extract of the duodenum into loops made at different places along the intestines. I have introduced the duodenal secretion into the bowel lower down, but without any very satisfactory results. I am now carrying on experiments such as Dr. Hyde has suggested. I cannot say much about the point brought out by Dr. MacCarty. I have observed several times dilatation of the stomach in dogs, following operations on the duodenum like those described in my paper. In these cases the antrum pylori was found contracted down hard, while the fundus was much dilated. This condition comes on suddenly and the dog will live for only a few hours. Another condition noticed a number of times was intestinal intussusception. This generally took place in the lower third of the small bowel and ended in death in a few hours. The most characteristic symptom was muscular jerkings, simulating a state of tetany.

As stated in the paper, the deleterious effects of a gastroenterostomy on dogs depends on where the gastric contents are discharged into the intestines. If 12-15 cm. from the pylorus, no effect; if 35 cm. from the pylorus, death will invariably follow within six weeks. It may be possible to put animals with long-loop gastroenterostomies on some form of diet that will sustain life under the conditions imposed by such operations. In reply to Dr. McCallum I will say that tetany did not occur in any of the animals used in this work. As already stated, some of the dogs in which intussusception took place did develop symptoms of tetany. In reply to Dr. Pilcher I will say that I have tried the injection of dilute hydrochloric acid into the duodenal loops and also into the part of the bowel lower down, but without any effect. In fact, little or no absorption takes place in the upper 12-15 cm. of the small intestine. In the jejunum absorption does take place, but acids here had no effect on the life and health of the animal.

Carcinoma of the Femur.—A case of metastatic carcinoma of the femur at the site of a fracture, occurring in a woman suffering from bilateral mammary cancer, is reported by Speese (*Proc. Path. Soc., Philadelphia*, February, 1910). The autopsy disclosed a single metastatic nodule in the liver and the carcinoma at the site of fracture, producing softened areas at this point.

MANUAL WORK IN THE TREATMENT OF THE FUNCTIONAL NERVOUS DISEASES *

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The task of treating the functional nervous diseases is so important and so perplexing that you who know the subject best will be most willing to weigh the experience of any one who has honestly investigated in the field. For this reason, although a general practitioner, making no claim to especial neurologic training, I venture to lay before you my conclusions after some years' experience with manual work as a remedy.

THE RATIONALE OF WORK

In order to understand the effectiveness of this simple therapeutic adaptation, we must assume that rational occupation of some kind is an essential of sound and successful living. We must also appreciate that in the functional nervous diseases, we shall not commonly find the patient rationally occupied but either overworking or idle. We shall also usually find that the patient, whether he is idle or overworked, has adjusted his mental and physical habits to his illness, thereby perpetuating the symptoms by making them consistent parts of his daily life. Moreover, it is in my experience almost always true that during periods of idleness or of overwork, the efforts of the patient to overcome his disease result in an accentuation and an accumulation of symptoms through self-consciousness and self-concern.

Manual work, used as a remedy, aims to introduce a new and objective interest, gradually forcing its adoption and increasing its prominence until the mental and physical habits of the patient are grouped about this wholesome center, rather than about the old standard of illness and complexity. It is found experimentally that this plan frequently does represent so radical a change that some at least of the troublesome nervous symptoms which may have become quite dependent on the old order drop out of sight. Manual work as a remedy, if it is appropriately and wisely used, may also, in the functional derangements, go far toward bringing about a state of self-forgetfulness, which if attained has often in itself meant a virtual cure.

SYNTHETIC VERSUS ANALYTIC METHOD

The work cure, while it has the same ends in view as the various other forms of treatment, differs radically from most of these in that its course is synthetic rather than analytic. The trend of the modern treatment of the mental element of the functional nervous diseases is distinctly analytic; the attempt is made to correct the psychoses by explaining away old fears and misunderstandings. The skilled psycho-analyst delves and probes until he has laid bare the secret mental life of the patient, thereby making the mistakes and faults of the past so evident that their correction becomes logical and so inevitable. But there are those who feel that in many cases, remarkable as are the results thus achieved, any analytic study beyond that required for a fairly clear understanding of the case may involve serious dangers, especially in the hands of the inexperienced and the unskillful. If it is true that a practical unconsciousness of self is an essential of normal living, is it not possible that the self-study necessary in these exhaustive analyses may sometimes defeat its own ends

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

by bringing about new and unfortunate states of self-consciousness? The experienced psychotherapeutist should be able to avoid such dangers, but the average man who attempts this kind of treatment must not infrequently find himself involved in difficulties beyond his understanding. To those who have this fear of complications, the work cure will undoubtedly appeal, for it takes the patient as he is, and seeks first to improve the mental and moral condition by substituting for the well known confused and faulty habits of life a simpler and saner order of living.

THERAPEUTIC VALUE

If we succeed in establishing simple habits of industry within the limitations of the patient and in spite of the continuance of many untoward symptoms, the therapeutic value of such accomplishment is obvious. The neurasthenic patient who after long years of worry and over-doing has made a failure of his vocation and who has had idleness forced on him, may be by this course not only improved physically and mentally in ways that any one may see, but through the action of forces we may never analyze he becomes a man who can at last be reached by argument and who can respond fully and permanently to the stimulus of wise suggestion. I need only say that the patient, except for his natural limitations, has in this course a chance in some measure to substitute success for failure and that he may frequently go back to his old life so schooled in simple straightforward living that the vicious complications do not return in force.

The difference between the analytic and the synthetic courses is, to be sure, frequently one of sequence only, for in the end we shall have accomplished in each case a virtual analysis, and in favorable cases a logical cure. But the difference in sequence is sometimes very important, and has, I feel sure, not infrequently made the difference between order and confusion.

WORK CURE ONLY AN AID

The work cure, at its best, is, of course, but a supplement and background for careful medical diagnosis and treatment. It does not attempt to discredit any of the methods of treatment now in vogue but may go hand in hand with them. In certain cases it may not be appropriate at all, while again it may render all other treatment unnecessary. The principle involved in the work cure is as old as humanity but it will bear frequent emphasis. Its full recognition has, in my own case at least, made the adequate treatment of the functional nervous diseases a greatly simplified problem.

WORK CURE INSTITUTION

About six years ago, I began to consider the possibility of an institution which should make practical application of the principle of industrial therapeutics and which should serve as a laboratory for experimental research in this direction. The development of the plan, although beset with many difficulties, has been most interesting and encouraging.

Perhaps other occupations and other details would have been as well or better, but the choice fell on certain of the ancient crafts such as could be accomplished without haste and without the use and danger of complicated machinery. We have to show for our efforts a considerable industrial plant, well equipped and well situated. For many reasons, the idea has been from the first that the shops be as good as good craftsmen could make them, and that the products should command respect and interest everywhere. This end has been accomplished by making the shops essentially independent of their clinical use. At the present time we have seven workers who may be properly classed as expert craftsmen or designers. Besides these, there are several assistants who will soon assume rank as craftsmen. These people go to the shops every day and work at their various crafts. The patients are introduced from time to time as pupils or apprentices. The craftsmen who do the teaching have had enough experience with illness so that, under direction, they can successfully manage the work of the pupils. With a basis like this, the patient who comes as a pupil has at once the feeling of support afforded by a permanent organization. He has the example of good work always before him, and the advantage of a selling agency where his own products, as well as those of the professional craftsmen, have a chance for the final approval which comes with purchase by disinterested parties. Another advantage of a well organized shop is that it makes it possible to supply the patient with approved designs, tested materials and careful supervision, so that from the start his time and strength are not wasted but are extended in profitable channels. You will readily appreciate that these practical points are important clinically as well as commercially and artistically, for there is nothing so sure to fail as indecision and uncertainty.

The crafts which we have employed are pottery making, hand weaving, wood carving and metal working, with separate shops and separate instructors in each craft.

PRACTICAL SIDE

For three years these shops represented a very considerable expense, but during the past two years they have become nearly self-supporting, through the sale of their excellent products and quite independently of their medical use. I believe that such plants on a smaller or a larger scale may be successfully established anywhere, and I hope that the success of this venture may encourage similar experiments by men who are interested in the subject. I believe it would be a revelation to most of you to know how little argument, how few of the long and trying conversations with the neurasthenic patient are necessary even at the first, when the industrial method is pursued. It is my custom in suitable cases to explain to the patient that his symptoms are at any rate intensified by the kind of life he has been living and that we shall be able to make readjustments and corrections with greater facility when he has reduced his living to the simplest terms—to terms of work and rest—and when he has left behind him the hopeless entanglements of the life he has been living. The patient is very rarely asked to overcome his symptoms directly, a thing his experience assures him is impossible. He is instead given simple directions for work and rest, he is assured and his common sense tells him also, that these first easy things are quite possible and within his capacity, and that further steps may be a matter of reasonable progression.

RESULTS

In a recent article[1] I have given a list of 100 cases of functional nervous diseases treated for the most part synthetically and by the industrial method. Whether

1. Work-Cure: A Report of Five Years' Experience at an Institution Devoted to the Therapeutic Application of Manual Work, THE JOURNAL A. M. A., Jan. 1, 1910, p. 12.

my results[2] compare favorably with similar cases treated in other ways I do not know, and it is probably impossible to judge. But I feel that in addition to a fair proportion of the usual clinical successes, the training in simple, uninvolved living has been of the utmost value to the patients.

SIGNIFICANCE OF THE PRINCIPLE

I cannot refrain from directing your attention for a moment to the possible significance of this industrial principle as applied to a field reaching far beyond the confines of the functional nervous diseases. So many people are suffering in mind and body because of the attempt to accomplish too much, or from idleness which is not necessary, that a therapeutic readjustment would mean preventive and curative medicine on a large and important scale. Nor is achievement along these lines impracticable. Last year, in a stimulating and suggestive article, Dr. Jacoby of New York reviewed the work of two large charitable institutions in Germany[3] where appropriate work is part of the treatment of nervously broken down patients. Here and there in our own country are men awake to the possibilities of handicapped labor, both from the humanitarian and clinical point of view, and because of the really important clinical results to be secured. In the sanatoria, where such a thing has been quite unknown until within the past two or three years, productive industry is rapidly finding a place. A final and most hopeful consideration is this, that the work of the invalid and the handicapped may mercifully be kept within the limitations of the individual capacity and may still be so carefully designed and so well directed that it equals or exceeds in value much of the accepted product of those who are sound and well.

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GYMNASTICS AND MASSAGE IN THE TREATMENT OF NERVOUS DISEASES *

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Perhaps the greatest field for gymnastics and massage is in the domain of nervous diseases, because the problem here is generally one of nutrition and restoration of muscular function. Every specialist in these diseases should, in my opinion, have a practical training in these branches of mechanotherapy, because otherwise he cannot intelligently direct such treatment, and a considerable portion of it should be performed with his own hands. I shall not here discuss the technic further than to call attention to a few points and procedures. Nearly all patients with nervous disease suffer from digestive troubles, constipation and poor nutrition, and in abdominal massage which should be performed by the physician, or an experienced masseur or masseuse in exceptional instances, we have, to my mind, the most valuable single remedial agent for these conditions.

ABDOMINAL AND GENERAL MASSAGE

Abdominal massage should be performed through a single covering; for instance, the undershirt, and should consist of kneading of the colon in circles by the palmar tips of one hand, with the tips of the other making the requisite pressure on the middle knuckles, this to be followed by deep stroking along the course of the colon from the ileocecal valve to the sigmoid; then by a vibration of the entire abdomen with the flat hand applied over the navel region. Lifting of the transverse colon and stomach with vibration in Glenard's syndrome, which I might say in passing is far more common and of far less significance than is usually supposed, is at times of assistance. All other manipulations I believe to be superflous. With daily treatments until the bowels reacquire the habit of moving once in the twenty-four hours, I advise the patient to strengthen the psoas and iliacus and the external abdominal muscles by the exercise of rising from the supine position on the floor to the sitting, without bending the knees.

Whenever general massage is indicated it should be preceded, in my opinion, by passive movements of each limb, because the circulation is thereby so much enhanced that it practically doubles the value of the treatment.

The vibrator invented by Liedbeck, of Stockholm, and so much exploited in this country the past few years, has physiologically the same effect as electricity in exciting muscular contraction and thereby stimulating the circulation and metabolism, and will fail in specific remedial action just as does electricity, if blind faith instead of an exact knowledge of its physiologic effects guide its use. As a sedative to nerve irritability and pain it surpasses the electric current, but it is not nearly so powerful a stimulant to muscles and nerves and thereby to nutrition and function, but it is generally more pleasant to have applied.

The extravagant claims for massage by lay operators and ignorant practitioners, together with the confusing and repelling elaboration of technic by authors on this subject, have resulted in the avoidance of a study and use of this really valuable therapeutic aid. Many manipulations require practice, but really the art is very simple and requires mainly anatomic and physiologic knowledge.

The principles which guide us in prescribing exercise or massage practically resolve themselves into a consideration of physiological action. Under gymnastics and massage we include also all exercise.

PRINCIPLES OF MASSAGE

We may view the human being as a machine, made up of a neuromuscular system whose activities are paramount; which is fed and oiled by the gastro-intestinal and circulatory apparatus; and we can employ the much and frequently misused term "reflex action" and say that its whole function is to convert sensation into motion. Not only is the integrity of the muscular system dependent on the intactness of ganglion cells, as shown by the rapid atrophy following, for instance, poliomyelitis; but if intrauterine disaster results in am-

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

2. The results of work-cure quoted from the above-mentioned article are:

Name of Disease.	Number Treated.	Improved.	Much Improved.	No Relief.
Hysteria	18	15	1	2
Insanity	5	2	2	1
Neurasthenia severe	12	7	4	1
Neurasthenia mild	20	12	8	0
Neuroses	17	8	5	4
Psychoses or fixed idea	8	1	3	4
Unclassified	20	14	4	2
Totals	100	59	27	14

In reference to the insanity cases it should be said that it is not intended to treat at Marblehead any case of insanity. These cases were accepted in the early days of the institution.

3. Jacoby, G. W.: A Colony Sanatorium for the Nervous and Neurasthenic: A Much-Needed Work of Philanthropy, New York Med. Jour., April 18, 1908.

putation of a limb, the motor cortex and spinal cells governing its activities do not develop, so that it is just as essential for the growth and maintenance of the efficiency of the machine to exercise the muscles as it is to use the neural elements.

The stimulation of mental function by exercises is strikingly shown by the success of Witmer, of Philadelphia, and by the work of the Elmira Reformatory. At the latter place in cases in which lessons could not be learned previously, the mind was virtually reached through the muscular system. I do not think that we appreciate how much the proper condition of the nervous system is dependent on the afferent impulses from the use of the muscles; it may be compared to the influence of the sensory neuron on the motor. The muscles form the furnace of the body and the greater part of our body heat comes from their use; their contractions exert a profound influence on the circulation in arteries, veins and lymph vessels, on respiration, metabolism and excretion, altogether, on nutrition.

VARIETIES OF EXERCISE

Exercise of the muscles should mean more than the habitual use of the legs in walking about in our shops or offices, or the use of our hands in our daily vocations; it should mean some game or movements which calls into play practically all of the muscular apparatus, and at the same time pleasantly occupies the mind. To do the most good it should be a daily affair, even if of short duration, and taken out of doors whenever possible.

The physiologic action of exercise on vital functions makes it the most important single prophylactic against the development of nervous disease. Realizing that neural expenditure is greater than muscular and far more exhausting vitally in all "willed" movements, we have the key to the kind of exercise to prescribe for the individual patient. If they are extremely run down we begin with passive movements and exercises of imitation, progressing to complicated evolutions requiring cerebral initiative later. Sawing wood or any other work calling into play the greater part of the muscular system is valuable exercise. Of gymnastic systems the Swedish is easily first. Its essentials are: active and passive movements of which each joint is capable, with or without resistance on the part of the operator or patient, a proper position of the trunk, and a progressive sequence of exercises. Systems advertised by "strong men" in our newspapers, which consist of joint movements with strongly contracted muscles, develop some muscular strength but are of very little value therapeutically. Machines for exercise from the complicated and expensive Zander's to Sargent's pulley weights are very commendable. Dr. Gulick's Y. M. C. A. system of exercises is commendable. The German turnvereins make more for developing strength, especially of the upper extremities, and teach self-control, but are not so valuable for the rounding out of the individual as general athletics, and are not well adapted to therapeutic ends.

EXERCISE AND MASSAGE

Physiologically speaking, massage differs from exercise in that the latter has cerebral initiative, and with this, trophic impulses, and is both more intense in its general action and also more exhausting. Movements and massage increase the functional activity of the glands, of the skin, and for our purposes, massage has a pronounced anesthetic effect locally and a hypnotic effect generally. On the blood-pressure massage produces an initial rise followed by a fall, obeying in this case the same law that obtains in all forms of stimulation; namely that "reaction is equal to action;" this holds good for exercise.

FATIGUE

Fatigue is a phenomenon of double origin: one form is due to exhaustion of the nerve elements, and the other to a heaping up of work products locally in the muscles. We usually deal only with the first, as it is our consciousness of tire of the nervous apparatus governing motion that we speak of as fatigue; the impulses from the motor centers—the cerebral initiatives—exhaust the highly differentiated nerve structures first, so that a long-distance runner, for instance, after establishing the equilibrium between respiration and circulation which we call getting the "second wind," shows fatigue first from exhaustion of the nervous mechanism—from "willing" the movements—and lastly from tire of the muscles. It is probably safe to say that directing the attention to the execution of movement uses up the pabulum of the ganglion cells, while waste products accumulate, so that the fatigue of the nervous system is essentially the same as that of the muscles. Ranke washed out fatigued muscles with a saline solution, immediately restoring them to vigor, and Zabludowski restored muscles exhausted from faradization by massage. In other words removing the waste products restored working capacity.

There is another element in fatigue which is of peculiar interest to us as neurologists, and that is the mental factor. We see a young man in fine physical condition go into training for some athletic contest, living the "simple life," and then all at once begin to lose weight, perhaps developing a diarrhea or troubled sleep; in short he goes "stale"; his expenditure seems to exceed his income, nutritionally speaking. This can be explained only by the hypothesis of an exhaustion of the neural elements, of the cells governing his higher cerebration; in the last analysis, a fear in the mind. We know that emotion is far more exhausting than physical exercise. The high tension of the runner, waiting for the pistol-shot, exhausts him far more than the muscular effort of running. A neurasthenic is an individual gone stale.

NEURASTHENIA, HYSTERIA, HYPOCHONDRIA

For our purposes we may divide nervous diseases into functional and organic. The great functional diseases are neurasthenia, hysteria and hypochondria, all three of which are essentially mental troubles. Neurasthenia has been considered a fatigue neurosis, the pathology of which has been assumed to be a chronic malnutrition of the nerve cells due to some auto-intoxication or other chemical or physical disturbance. I firmly believe that in a few years we shall all recognize that the determining underlying cause is a disorder of the thought apparatus which will demand mental treatment. Breur and Freud have thrown a flood of light on hysteria and the psychology of automatisms, dreams, and various psychopathic states, and whether we treat a case of hysteria by psycho-analysis or by the reasonable persuasion of DuBois, we all recognize that the essential thing for a cure is to supplant the "sick idea" in the mind of the patient with the healthy one. Hypochondria undoubtedly is a disorder primarily of the mind, and when we can remove the fundamental fear we have started the patient on the high-road to recovery.

The clinical manifestations vary in these three disorders but are largely the result of perverted neuro-

muscular function, and as it aids in the removal of these, mechanotherapy is of the greatest utility, and besides is of value as part of the mental treatment. The Weir-Mitchell rest-cure has been a favorite measure in the treatment of these diseases, but its main value, as Du Bois says, is to give the physician mental control of his patient. There are patients who will derive benefit from this procedure, but I think that the vast majority will do better with a routine of exercise and massage graduated to the degree of functional impairment.

Gymnastics, games with balls, of which golf is easily first for the adult, horseback riding, walking, dancing, out-of-door work, rowing, fishing, and hunting are the exercises indicated. General massage combined with passive movements of the joints is of great value frequently. Since the nutrition usually is below par, abdominal massage because of its beneficial action on the "kitchen" of the economy has been of the greatest service in my experience, and will remove the chronic constipation of these sufferers if a regular habit is insisted on at the same time.

Insomnia is a symptom which is again a disorder of thought mainly, and removal of this is the important thing, but an important aid is general exercise and the general massage treatment; especially when succeeded by sedative peripheral stroking with the hand or a brush, administered at bedtime.

If we stop to think of it, nearly all our so-called functional nervous troubles are essentially "thought" disorders, and exercise, gymnastics and massage are valuable aids to the mental treatment.

MASSAGE IN ORGANIC TROUBLES

Organic troubles can all derive benefit from movements and massage. In some diseases, such as the spastic spinal disorders, care must be taken to be very gentle in all manipulations or the treatments may easily do as much harm as good. The paralyses following acute anterior poliomyelitis appear at first glance hopeless, but in no other serious impairment of the use of the muscles can such brilliant results be obtained as here. Massage, active and passive movements with and without resistance, and the maintenance of a correct position of the limbs by suitable orthopedic apparatus will restore life and function to withered and apparently dead members. To my mind these results must depend partly on a central stimulation of ganglion cells from the periphery, aided by impulses coming from the cortex. We should stimulate the latter by encouraging the patient to "will" the movements which we execute passively, before any movement is possible by the patient.

Locomotor ataxia demonstrates well what possibilities lie in persistent practice of movements. Frenkel accepts the anesthetic theory of ataxia, and believes that the persistent practice of the exercises bearing his name compensates for the absence of the sensation of the movements; while Goldscheider thinks that through these exercises, the irritability of certain uninjured cord neurons is heightened and in that way act vicariously for the degenerated pathways. These exercises depend on the degree of disability and are not difficult of application; some are to be made in bed, others sitting, standing or walking. Fatigue is to be guarded against, and the movements must be executed with methodic precision. In my own experience the practice of the elementary movements of walking are of the greatest utility to the patient. Massage and movements are of the greatest aid in keeping up nutrition and function in the imperfectly used muscles and joints.

Facial palsy responds kindly to massage in conjunction with galvanism and other measures.

The various forms of occupation neuroses such as writers cramp should be treated by coordinated muscular exercises which do not call into play the same group involved in the cramp, and with these passive movements and massage are to be used.

In the various forms of neuritis, when inflammation has subsided, as indicated by the absence of pain, movements and massage are of the greatest value.

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ABSTRACT OF DISCUSSION

DR. C. R. WOODSON, St. Joseph, Mo.: Employment of a congenial nature, either in or outdoors, is beneficial in the treatment of some nervous troubles, and is not necessarily confined to functional forms. Employment outdoors ordinarily brings better results than indoor employment, from the fact that there is more diversion in it. And outdoor employment brings a little fatigue and necessarily has associated with it some sunshine; fatigue and sunshine have much to do in bringing appetite; and the three combined are Nature's best remedies in producing sleep, and that is the greatest nerve restorer that we have. There are many persons who suffer from nervous diseases who do not obtain relief of the pent-up forces without employment, and it is especially good for an exalted type of mental disease, particularly where it has passed the exhaustive stage or period. Take the commonest cur and tie it up and it becomes vicious as a bulldog; but let it give off the pent-up forces and it becomes so docile that our little children can play with it.

In regard to massage and gymnastics in the treatment of functional nervous diseases, in some respects I agree with the essayists, but I have found that massage is more commonly beneficial with organic disease. Massage is good where there is defective circulation; in the old it is good in the various paralyses; especially is it good in the treatment of poliomyelitis; that is, associated with other things, and gymnastics; or I will even stop short of gymnastics and say, exercise. The fact that you teach the child that suffers from poliomyelitis to try to do the things that it cannot do, is beneficial. Employment in the treatment of those who are congenitally defective, or those who suffer from acquired defectiveness, may be beneficial because of the close relationship of the hand and mental centers. The individual who suffers from nervous troubles of a functional nature, if young, in many instances may be benefited by gymnastics, but they are not appropriate in the old. That massage does help to correct many defective metabolic changes there can be no question, and it should be used; but to lay down a rule of treatment, employment in industrial buildings or outdoors, or massage and gymnastics, is as broad as taking any one of the numerous therapeutic agents and saying it is good. They are all good, but it requires much more than these to effect a cure in most cases. In melancholia in which the individual's mind is not impaired, but dwells on his miserable condition, employment takes the patient's mind off from himself, his appetite increases and sleep comes, all helping to effect a cure.

DR. JOHN PUNTON, Kansas City, Mo.: Of interest to the neurologist as well as to the internist is the care and treatment of the neurasthenic, especially the poor neurasthenic, the man or woman without means such as are found in all large cities. I think that Dr. Hall deserves credit in suggesting to us the method which seems to me to practically solve that problem in many cases. When he can institute and organize a method of treatment which after a few years of experimentation has become so practical in all its methods that it becomes self-supporting, it does seem to me that our state authorities can well afford to introduce in the larger cities at least a psychopathic hospital where many of these poor unfortunates can be treated with just such treatment as he suggests, and in a very short time could be made self-supporting, so that the state itself would be at no great expense.

Dr. Hall did not state in his paper whether he used other treatment or not. I presume that he did; but if he did not I cannot quite understand how he can meet all cases. Those having some experience with the treatment of this class of patients which he referred to, know as well perhaps as I, that many of them are wholly exhausted when we first see them; in other words, I believe that there are degrees of exhaustion even in neurasthenia, and many times it depends on the state that you find your patient in as to whether or not this method of treatment would apply at the time that you see him. But I believe that there comes a period in the course of the disease when this method can be put to good use in most cases.

It was especially interesting to know that Dr. Hall recognized the fact that it does not apply to all cases of neurasthenia. I believe he is correct, because I can well understand why some of the neurasthenics could not be satisfied with this method of treatment; but the large majority of them could be greatly benefited by it, and I think that the doctor deserves congratulation on his success.

DR. FRANK R. FRY, St. Louis: I want to commend Dr. Hall's careful methods. They are by all odds the most important contribution to employment therapy that we have had in this country. In the course of time he will receive due credit.

There are many of us—all of us, in fact—who practice neurology, who know that a great deal can be accomplished by work-therapy. In this instance, as in other similar matters of therapy, we do not get at it right. For instance, we are too apt to send the patient to somebody to get massaged, and too often that is about as far as we go with it. We should know the details of massage better. The same is true of exercise. I do not believe that anybody ought to attempt to prescribe exercise for a patient in a case of any importance, unless he is familiar with some of the processes of gaining exercise; unless he knows something technically about what exercise means. For instance, a patient cannot walk because he has bad feet; he must have exercise; another one because the pelvic contents are uncomfortable when she attempts to walk must have other exercise. How are we going to prescribe exercise unless we are fairly familiar with the methods of getting it? This work that Dr. Hall and Dr. Sneve explain in their papers so well is important. Gradually a larger contingent will gain the kind of intimacy that is necessary to make it effectual. We must recognize the rapidly increasing importance of all of these methods, and the necessity of availing ourselves of them if we are going to hold our own in America with neurologists in other countries.

DR. PHILIP ZENNER, Cincinnati: I wish that Dr. Hall would manage to read a paper of that kind often, and try to interest not only medical men, but the public, in it, so that we possibly might get what Dr. Punton spoke of, some assistance from the public or from the state for these purposes.

There is one thing the doctor mentioned in connection with occupation treatment that is important, and that is, that it often takes away from the patient's mind the effort to control himself, the effort that he makes over himself to overcome his symptoms and to get well. That is often a difficult point with us. Effort means everything to the patient in order to get well; and yet we see many cases in practice in which that effort doubtless is one thing that is keeping him from getting well. It is difficult sometimes for us to decide what to do in this matter, and very often the wisest thing is to tell the patient not to make any effort over himself.

DR. C. P. EMERSON, Clifton Springs, N. Y.: A visit to Dr. Hall's sanatorium interested me so much that I have tried this therapy in the many cases that come under my notice each year. It is true that among a certain number occupation therapy is valuable. For instance, the carpenter-shop is a very good thing for many clergymen and school-teachers, but not among the farmers or day laborers.

I was much interested while connected with the Johns Hopkins Hospital, and working in the social charity work of the city, to find how many society persons were willing to do in the way of occupation therapy, social work among the poor sick. Of course our purpose is to decentralize the person, but nevertheless it seems to us that what is needed first is a good, thorough rest, a good course of purgation, a very, very simple diet, hours and hours out in the sunlight and fresh air, without any physical exercise. Then the occupation therapy is in order. One must study the case. What work will interest and decenter the person? It may be this, that, or the other; art for some, the carpenter-shop for the clergyman and school-teacher, who have spent most of their lives in closed rooms; and the corn field, let me say, after the patient is well rested, is also better for him than a Zander apparatus.

DR. L. H. METTLER, Chicago: This question of exercise in the treatment of nervous diseases is a much broader one than would appear in the discussion of it in these papers. The last speaker, as well as Dr. Punton, has intimated that which seems to me to be the most significant point in the whole matter, namely, the establishment of the particular character and purpose of the exercise to be employed and the particular disease in which the exercise seems to be called for.

Many perfectly healthy individuals would derive benefit from the discipline and activity involved in the manual training of the workshop, the systematic reading of select literature, or any other means of physical and mental activity. We have all seen plenty of people, apparently in a state of perfect health, to whom gymnastics might be of the greatest advantage. To iterate and reiterate that exercise is a good thing in the treatment of nervous affections, without further specification of the why and wherefore, is a useless waste of time. Indeed it brings to mind the old story of the physician who advised his neurasthenic patient to take more physical exercise, and found his advice to be a bit ridiculous when the patient slyly informed him that he was a letter carrier. The trouble with all such advice and with papers like the second one that we have just listened to, is that they are so beautifully indefinite. The grain of truth discoverable in the midst of all their elaborate phraseology is that walking, bathing, gymnastics and exercise are highly commendable because they somehow improve the circulation. Such an ancient saw, however, does not call for any elaborate expenditure of ink and paper in its exposition. It would be far more to the point, especially before such an audience as this, to give some detailed description of the exercise, the nature of the disease in which the exercise is to be employed, and the therapeutic relationship between the selected exercise and the pathological process in question. As Dr. Fry intimated, such a discussion of gymnastics as we have just listened to, makes one think of the exploitation of certain serums. It amounts to saying, "It is a good thing; give it!"

And again, let me say I am amazed that anyone, like the reader of the second paper, should have the hardihood to rise up before a neurological audience, such as this, and with a wave of the hand dismiss hypochondriasis, neurasthenia, psychasthenia and hysteria as being all more or less alike in representing merely some form of mental trouble. Many neurologists, I know, would be most happy if they could settle so satisfactorily the many difficult problems connected with these distinct and long recognized clinical entities. I am still of the opinion that many of the neurasthenic cases that I see are far from being merely psychasthenic. In such cases I have been able to detect weaknesses and deficiencies that represented something more than merely a psychic disturbance. They may have been denominated functional or incipiently organic, but they certainly occurred in the physiologic rather than in the psychologic sphere. In their treatment absolute rest, exalted nutrition, and the overcoming of intoxication of some sort have effected cures where psychotherapy would have utterly failed. In some of these cases exercise and gymnastics would have proved disastrous. And only after proper eliminative, restful, and highly nutritional treatment, when the patient was well along toward convalescence, would selected exercise, both physical and mental, be recommended. I desire most emphatically to assert that the indiscriminate recommendation of exercise and gymnastics as a grand and useful therapeutic measure, without such recommendation being always and everywhere guided and guarded by a full realization of the nature of the disease process for which the exercise is being

commended, is close to the border-line of quackery and is wholly unwarranted in the light of modern neurology. It will be the cause of much damage and will be recognized by every intelligent neurologist as a form of malpractice.

DR. THEODORE DILLER, Pittsburg: In the employment of any therapeutic agent we must use discrimination; and I assume that the gentlemen who have advocated work would of course apply these therapeutic measures with discrimination; the whole treatment of functional nervous diseases therefore comes down largely to a matter of personal equation. Some one has said that no one should become nervous until he becomes rich. We know how badly we are handicapped in the treatment of nervous diseases by lack of financial resources. I recall that Lord Salisbury some years ago made a very able address, which I have often recalled, in which he made the statement that the greatest single advantage—surpassing all others—of surplus wealth, was the confidence and resources that it gave us in case of illness. With wealth one can rest without worrying about financial matters; he can procure the best doctors and nurses, and he can travel or take a long vacation.

Now with this generalization I should like to express my warm conviction that there is a therapeutic agent which goes with massage, with exercise and with rest, and which I believe is extremely important in the treatment of functional nervous diseases; I mean having fun. I have long been convinced that all other things being equal, the very best way to get exercise is by a game while having fun. We know that this is true of healthy children; the best way that they get exercise is by a game. Contrast the boy whitewashing the fence with the boy playing baseball. We have golf coming along now, and I should like to see it put in all our parks. I believe in this spirit of fun, and the more you can make exercise a game, the better it will be. Of course these other things have their peculiar and especial application, and I think no one can doubt the value of regular work for many nervous persons. I believe that it is one of the greatest things, not only for patients with functional nervous diseases, but as a promoter and conserver of good health.

DR. HERBERT J. HALL, Marblehead, Mass.: I tried to make it clear that I have not confined myself at all to industrial treatment. I stated in my paper that the work cure at the best is but a supplement and background for careful medical diagnosis and treatment.

DR. HALDOR SNEVE, St. Paul: I wish to commend Dr. Hall for the valuable new procedure that he has described to us. But I want to utter a word of warning that we should not treat it as a routine cure-all, and prescribe the latest fad. We are prone to faddism in medicine, and especially in neural troubles I believe; and I want to say that I think the main element of cure in Dr. Hall's method, if it may be called that, is the mental element. I am sure Dr. Hall recognizes that, and I want to utter a word of warning that it is not just because you do the work and occupy yourself that suffices, because if we did not recognize the mental element behind it, the treatment would fail.

Now as to general gymnastics, exercise, massage, etc. I took particular pains in the few observations I made in this paper to say that these are not to be prescribed indiscriminately, and the paper really resolves itself into a consideration of the physiologic action of gymnastics and massage; and to lay down, as one of the last speakers said, definite rules, is impossible. You must use the gray matter in your brains. You must understand the physiologic process involved. We cannot lay down primer rules in things of this kind; and they must remain more or less indefinite.

Reward for Hard Work.—When republics fail to produce men they fail all along the line. To the toiler belong the victories and the power. There is only the space of a man between Lincoln's log cabin and the White House. It is the brain that is cultured, not the brain that is sugar-cured, that gives out the thoughts which men believe in and are willing to trust. The man who is afraid of soiling his hands might as well write his epitaph. The angels of God help the man who is doing his best to get there.—*United Presbyterian.*

NERVOUS AND MENTAL DISTURBANCES OF THE MALE CLIMACTERIC *

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It may be acknowledged at once that the term "male climacteric" is a bit sensational, in view of the fact that it is not specifically recognized by any physiologist. For instance, the "American Text-Book of Physiology" denies that the male presents either a monthly molimen or a climacteric comparable to that in the female. If we confine our attention on the subject of menstruation entirely to the monthly flow, and see in this rhythmic manifestation nothing but an ovarian activity, we need go no further in the discussion of the question of a male climacteric.

But it is a well-established anatomic fact that the early months of embryonic life show no sexual differentiation, and that all of the constituents that subsequently under variation develop into the sexual apparatus of male and female, are indifferently present in either sex, not only up to a certain period of intra-uterine life but in a rudimentary form throughout the entire period of human existence. The statement is a common one that before the age of puberty boys and girls are physically much alike, and it is also a matter of common observation that old men and old women again become alike both mentally and physically through the loss of sexual differences.

MONTHLY RHYTHM IN MEN

We must, however, take a broader view of the monthly periodicity which shows itself so significantly in the female. This matter has been carefully studied, among others, by Campbell.[1] He lays stress on the fact that the monthly rhythm affects females not only before the appearance of the menstrual flow, but in the post-menstrual period for an indefinite time that extends in some instances to the end of life. He believes, although he brings nothing of great significance forward to prove it, that the male is similarly the subject of a twenty-eight to thirty-day rhythm, and his conclusions are that man, like woman, passes through monthly cycles, which begin with the beginning of life and continue until death, and that menstruation as ordinarily understood, that is, the monthly flux, is a reproductive function which has, in the case of the human female become engrafted accidentally, so to speak on this primordial rhythm.[2]

Bearing on the subject of the monthly molimen, a number of studies have been made. A German observer carefully followed the temperature in a number of soldiers living under uniform conditions, and found that, as in the case of women there was a distinct monthly variation or curve. Unfortunately, the name of this observer and the reference have escaped me.

Dr. Clelia D. Mosher[3] as a part of a long study of the arterial pressure conditions in women, with particular reference to the menstrual period, followed the same plan with five men. She found in nine women and five men thus observed for a long period of months, that there was a rhythmic fall of blood-pressure occurring

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Campbell, Harry: Differences in the Nervous Organization of Man and Woman, London, 1891.
2. Campbell: Differences in the Nervous Organization of Man and Woman, p. 274.
3. Bull. Johns Hopkins Hosp., April, May, June, 1901.

in both at definite intervals. The fall in pressure in women occurs near or at the menstrual period, preceded by a preliminary rise three to five days before the onset of the main fall, and these variations are not peculiar to either sex in the general features of the pressure curve or the periods of high and low tension. Both men and women who have a tendency to digestive disturbance find themselves likely to be more subject to such disturbance at the period of low pressure; or when a slight chronic catarrh exists there may be marked increase of symptoms at that time. With the high pressure, which in women precedes the flow for some days, in both sexes there is a sense of well-being, of superior activity in all directions, and apparently an increase in the resistive powers of the body against fatigue and infections.

Dr. W. T. Belfield of Chicago advises me in a personal communication that he has followed the variations in weight and temperature in two healthy young men for a period of three months, and that he found a distinct tendency, which he would not denominate a wave, toward a rise of weight but not of temperature, about every two weeks, with a phosphaturia analogous to that presented by women just before menstruation.

Sanctorius (1728), the great Italian clinician, was perhaps the first to suggest a monthly cycle in the organism of men. He based the suggestion on a careful study of the weight of the body with reference to the amount of excretions, and found that a monthly increase to the amount of one or two pounds occurred in men, followed by a critical discharge of urine, the crisis being preceded by feelings of heaviness and lassitude.

So, too, Stevenson has insisted that menstruation is not confined to the female sex, and that there also exists in men a cyclic wave which is really a manifestation of a general law of vital energy.

A number of observers have attempted to establish a cycle of sexual impulses in men, but for obvious reasons, though their findings are somewhat suggestive of such being the case, they are not sufficiently definite to justify any generalizations.

Julius Nelson, Stanley Hall, Perry-Coste and other observers have been able to note a monthly rhythm in the frequency of nocturnal emissions in men living a chaste life.

A number of morbid conditions also seem to present such a monthly regularity as seems to be significant in this connection. I have the histories of two carefully observed male cases of epilepsy, extending over five and seven years, respectively, in which the attacks have occurred with as much regularity as the menstrual function in women, at periods of from twenty-eight to thirty-four days. This rhythm in each instance was occasionally broken by the use of large doses of bromid at the time of the expected attack, but again resumed its regularity on the withdrawal of the bromids. In both these cases the onset of the disease was at the age of puberty. Neither have attained an age that would present any modification due to involutional processes.

I have observed a case of migraine in which the attacks in a male varied from twenty-four to thirty-six days, over a period of several years; and the patient asserted that these attacks had been of similar periodicity for a number of years before he came under my notice. Incidentally, I have repeatedly seen migraine in the male subside between 55 and 65 years, just as it does in women at the climacteric, and typical periodical drinking in men usually follows the same rule.

Campbell[4] reports an interesting case of a man 62 years of age, who for twenty or thirty years had suffered a monthly hemorrhoidal flux; so regularly did it occur that he spoke of these periods as his "monthlies." Far from feeling any evil effects from the bleeding, he invariably experienced great benefit, the improvement expressing itself in improved vigor and more perfect bodily health. At the age of 60 the flux ceased to appear regularly and then he began to experience a long train of minor nervous symptoms, such as appear in the climacteric in women. He suffered from constant flushes of heat, during which he felt "groggy." These heats ascended and were attended by palpitation. He also suffered from marked tenderness of the scalp, and became highly emotional and almost hysterical. All these symptoms were greatly relieved by the sudden recurrence of a profuse hemorrhage. After this occasion he did not lose any blood for two or three months, and then it reappeared irregularly for eighteen months. All this time he was liable to the same nervous symptoms, but finally the flux resumed its former regularity, after which time he considered himself in perfect health.

Somewhat similar cases are also to be encountered here and there in the literature, as, for instance, one recited by Brierre de Boismont.[5]

Gall noted in a man a hemorrhoidal flux of a periodical character similar to the case already detailed.

Chopart cites a curious case of a soldier who had a monthly discharge of bloody urine; and a similar case is reported by Rayer.

Havelock Ellis,[6] who has given this subject as much attention as anyone, reports with great detail a case of cardiac asthma, the attacks of which recurred at about thirty-day intervals for many years.

Sir Henry Halford[7] as long ago as 1831, described a condition which he termed the "climacteric disease" occurring in men between 50 and 75 years of age, but did not make a close analogy between this condition and the climacteric of women.

The involutional period of male life has frequently been referred to as a climacterium in a rather loose manner, the writers not apparently intending to imply that there was a monthly variation in the male. For instance, Freud[8] says very definitely: "There are men who show a climacterium like women, and merge into an anxiety neurosis at the time when their potency diminishes."

MANIFESTATIONS OF MALE CLIMACTERIC

If, as seems not altogether improbable, the human male shows a monthly periodicity, there can be little surprise in observing manifestations of a similar character at the involutional or climacteric period in both sexes. Since my attention has been directed along this line—that is, for the past ten years—I have accumulated a large number of observations on which I purpose to outline certain generalizations, without burdening this communication with the details of case histories.

Involutional insanity in men, as in women, is of tolerably frequent occurrence and presents practically no distinctions and no regular form of psychosis. I find that in both sexes there is almost invariably a well defined tendency to mental instability, frequently well-marked family histories of insanity or of the major

4. Campbell, Harry: Flushing and Morbid Blushing, London, 1890, p. 110.
5. De la Menstruation, p. 136.
6. Ellis, Havelock: Studies in the Psychology of Sex, F. A. Davis Company, 1900.
7. Essays and Orations, London, 1831.
8. Selected Papers on Hysteria, p. 143

neuroses, and often former attacks of mental alienation in the patient himself. The particular interest of my subject does not pertain to the insanities, but to minor psychoses and neurotic disturbances. These, one and all, however, have a mental background.

Aside from the insanities above alluded to, any considerable degree of elation, delirium, or maniacal manifestations finds no mention in my case records. Almost invariably, there are expressions showing an anxious tone of mental feeling. This varies from the actual anxiety neurosis of the Germans, with all the obsessions and phobias that mark the psychasthenic, to the rather simple anxieties of the neurasthenic and the hypochondriac. Naturally this mental attitude is attended by more or less depression, and if the patients have had an attack of insanity earlier in life or come of a tainted family, fears of mental overthrow bulk largely in their list of worries. I have been struck with the frequency of various adolescent forms of mental disturbance among these early patients.

The mental features of worry and anxiety tend markedly to fluctuate, but I have been unable to notice that the fluctuations show any monthly periodicity. Daily alternation is much more marked than in similar neuroses earlier in life, and very commonly such patients will be tolerably bright and free from their worries and anxieties in the latter part of the day, the early waking and morning hours being those of decided depression.

On the physical side almost invariably there is a loss of weight and the patients present a higher arterial tension than has seemed to me to be altogether attributable to their age or general physical condition. As they tend to improve the arterial tension subsides to some degree. Gastro-intestinal activities are reduced. Indigestions and all sorts of intestinal complaints are common. These patients show easy fatigue and some general neurasthenia.

Almost invariably the patients who have been subject to periodical neuroses, such as migraine or periodical drinking, lose these attributes. As a rule the men shun alcohol, are willing to give up tobacco, and readily modify their habits in any direction advised. I have notes of one or two men who had histories of periodical drinking, who became for a period of several years steady drinkers; that is, they began to take two or three drinks a day, a practice which had been foreign to their entire life-history and was finally followed by complete abstinence. In another patient steady excessive drinking developed.

Headaches, oppressed feelings in the chest, sudden sensations of an alarming nature, especially vertigos, are commonly described. Cold extremities and heat in the head are generally mentioned.

These conditions run a variable course of from eighteen months to three years, after which the patients regain a fair degree of their former mental and physical characteristics and go along comfortably, with naturally some reduction of their former capacities.

MANAGEMENT

The management of these patients is a task requiring extreme tact, great patience, and a variety of expedients. For some, change and travel answer fairly well, although they are not happy in it. A reduction of the daily work is almost imperative in every case. General measures which serve to ease and improve the general circulation and build up the physical health, answer a good purpose. Vasodilators have seemed to me to be of essential value. Any tendency to sclerotic processes in arteries, liver or kidneys—conditions, of course, commonly found at the age presented by patients of this class—have their own indications. On the whole, the development of any of these nervous and mental manifestations in men between the ages of 50 and 65 is not of itself of serious import.

I have felt that the recognition of these climacteric features would more frequently enable physicians to take a hopeful view, and thereby maintain a more encouraging attitude towards this class of sufferers.

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THE PREVENTION OF BLINDNESS *

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There has never been a time when, as now, the world has given such careful thought and scientific study to the causes of disease and the most effective measures for its prevention. Within the last decade public health has assumed a new importance. As medical knowledge has become more exact, the needlessness and the costliness of disease have become more evident and the public has joined forces with the advance guard of the medical profession in the development of what is practically a new science—preventive medicine.

In the evolution of this work, certain facts have taken on new relationships and have stood out in greater prominence than ever before. We have come to realize that the social fabric of our modern life is woven together by the forces that make for the physical well-being of the people. We now know that disease is neither an accident nor a mysterious incident in a vast number of cases, but that it is the logical resultant of conditions which have preceded it, and an essential factor in maladjustments which must follow it. If, then, we so govern existent conditions that the level of human efficiency may be raised, or at least so interpose that conditions may not obtain whereby it shall be lowered, we thereby advance all human progress to a degree which we can never estimate. The inspiration, for example, that has come from the study of so universal a malady as tuberculosis has led its investigators far afield in inquiries concerning collateral relationships, social conditions and remote results. It is found to be a resultant of poverty and related to crime, and wider knowledge concerning the conditions under which it develops has modified the lives of thousands who may never have been threatened by it.

In like manner, a study of destructive diseases of the eye, or even those impairing its usefulness, will be found to have economic and social bearings as well as those of a strictly medical character.

Ophthalmology has been among the later of the branches of medicine to institute any broad inquiries in relation to preventive medicine—perhaps because, while ophthalmology is one of the more distinctive departments of medicine it is at the same time one of the most technical, and, by common consent, diseases of the eye are supposed to be relegated, both by the lay public and by the general practitioner, to those whose studies and experience peculiarly fit them for this work.

If it can be shown, then, that blindness to any large extent exists which under more favorable conditions should have been avoided, it manifestly becomes the

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

duty of ophthalmologists to initiate such measures as may be necessary for the public safety, because others neither know that eyes are lost which should be saved, nor are they informed as to what should be done to prevent such disasters.

Recognizing these important points, it is the purpose of this paper, not to suggest detailed measures for the prevention of blindness, but rather to emphasize the fact that a problem exists and that, as yet, no public movement has been organized for the purpose of solving it. The whole subject is new and as yet is merely in its inception, but with the cooperation of the ophthalmologists of the United States it gives promise of limiting human suffering and increasing human happiness to an immeasurably greater degree than could be obtained by our combined efforts as physicians and surgeons, directed to the relief of conditions which have already obtained; just as the prevention of disease is always and from every standpoint better than is its most successful cure.

When we speak of blindness, moreover, it should be borne in mind that the preventive measures which may be suggested are equally applicable in a vast number of cases in which total loss of sight has not occurred, but in which one or both of the eyes have suffered damage to such a degree as to lower the visual efficiency, and these are as the sands on the seashore. The lack of definite official action on this medico-social subject is shown at the very beginning in the absence of any authoritative definition as to the meaning of blindness.

The instructions given to the enumerators of the Bureau of the Census for securing data for the twelfth census of the United States, that for the year 1900, required the enumerator to ask "whether all persons enumerated have good sight and good hearing, i. e., can see and hear well." "And should it appear that the sight is so seriously impaired that it is impossible for the person to read a book, even with the aid of glasses," the enumerator was directed to note such person as "blind," even though he or she may have some slight power of sight. In most schools for the blind, a candidate for admission is considered blind who does not possess sufficient sight to be educated in schools for the seeing.

The Massachusetts Bureau of Statistics of Labor provided the following definition of blindness for the guidance of enumerators in taking the decennial census, and this was also adopted by the New York State Commission for the Blind in 1906. It included persons who "with the aid of glasses are yet unable to distinguish form or color, to count the fingers on the hand at a distance of one foot, or to read writing or ordinary print."

It would at once be evident that all these definitions lack exactitude because of the elasticity of the term blindness itself. The fairest and most just and discriminating definition of blindness is that of Dr. Lewis Stricker, given in the article read before the Ohio State Medical Association on blindness in Hamilton County.

He proposes a standard defining blindness of three degrees. The first is total or absolute blindness in which the light sense is completely abolished. The second, which might be termed relative blindness, is that in which the vision with either eye, with proper corrective glasses adjusted, is so low that fingers can no longer be counted at one meter or three feet, but movements of the hand or moving objects may still be discerned. The third, practical blindness, is that in which moving objects may still be discerned at three meters, or nine feet, but in which the field of vision has become so impaired (either by contraction of the field down to five degrees or less, or in which central vision is entirely abolished and a small area of eccentric vision remains, or in which disseminated scotomata exist, or in which is found only a sector of eccentric vision) that no useful vision remains and the individual gets about with great difficulty. Fourth, only those are to be considered as blind who are hopelessly and incurably so. As a basis for any statistical data that may be secured, it would seem necessary that this or some other equally precise definition should be officially adopted so that all records taken may have at least a relative degree of precision.

INACCURACY OF THE FEDERAL AND STATE CENSUS REPORTS

The absence of any accurate definition of blindness has been followed as a natural consequence by the greatest inaccuracy as to its extent as indicated by our national and state census reports.

Many individuals with uncomplicated cataracts have been placed among the ranks of the blind, to be practically but not technically taken from this list after the eye or eyes had been successfully operated on. Many persons were recorded as blind who had one defective eye or who had had one eye removed. The enumerators who took the census for the New York State Commission for the Blind found that many persons had been recorded as blind who were not blind at all, having some weakness of the eyes simply, while others back in the country from the trunk railroad lines who were actually blind were, in many instances, entirely overlooked.

It is evident that for scientific purposes the only records that are of any value are those which are made by trained and experienced ophthalmologists, but these are conspicuous by their absence where we would reasonably expect to find them.

ABSENCE OF ACCURATE DATA CONCERNING BLINDNESS

The lack of accurate study on this subject is evinced in the almost total absence of any large amount of reliable data and in the inexactness of those which are obtainable.

There are four sources to which we might look for statistics concerning the relative incidence of blindness and the causes which produce it: the federal and state census reports, the records of public institutions having ophthalmologic departments or being devoted to the diseases of the eye, the reports of ophthalmic examiners of schools for the blind, and the private records of ophthalmologists.

The records of most of our public institutions as a basis for the study of statistical data concerning the amount of blindness which exists seem to be absolutely worthless. The annual reports of ten of the largest institutions in the United States for the treatment of diseases of the eye were carefully examined and none of them appear to contain other than the most superficial notes on the character of the cases presented. It is of very little value to the public or to any one else to know that there were so many cases treated involving this or that tissue of the eye and that the cost of maintaining the institution was so much. Yet in none of them, except possibly the Eye, Ear, Nose and Throat Hospital of New Orleans, was anything more than this attempted.

The possibility of utilizing the vast amount of material which passes annually under the observation of the skilled men connected with these various institutions seems to be neglected. A careful study of each case, or group of cases, with the method of treatment employed, together with the average number of days which the patients were under treatment and the final

results obtained would be of great value and would add but little to the clerical labor involved.

For example, it interests no one to any large extent to know that three hundred and fifty cataracts were extracted at an institution during the year. But when the operation in a certain proportion of these cases has failed to give good results it interests every student of ophthalmology to know why. It is important to all of us to know whether higher visual acuity with greater or less corneal astigmatism is obtained by a section made in one way or in another, and when blindness results it adds a scientific value to the record if it is shown what conditions supervened to produce this disaster.

When an iridectomy or sclerotomy is made for glaucoma we should all like to know what the vision was before the operation and what it was six months or a year later. When vision for any reason has been reduced, while the patient was under treatment for corneal ulcer or other cause, it is a matter of definite value to know how long the patient was under treatment, what medical measures were employed and exactly what results followed.

If such records were made in all public institutions, two beneficial results would follow: First, the aggregation of a number of facts from which definite, helpful conclusions might be drawn as to the relative value of different methods of treatment. Second, the greater care which we would all use if we knew that our work was open to public criticism.

A third available source of study as to the causes of blindness should be our schools and institutions for the blind, but, except in very few cases, the causes of blindness are so unscientifically given as to make the record of doubtful value.

In several important schools for the blind no ophthalmic examiner is employed and no records whatever are made as to the causes of blindness. In a statement from one of the most important schools in the United States I read among the causes of blindness, in one case "meningitis," which probably means "optic atrophy," but it does not say so. The next is exophthalmic goiter, without any statement as to the condition of the eyes producing blindness. A third is "accident," another "disease of the blood," but this is starred as not the oculist's statement, which by inference would mean that the others were. Still another is "glaucoma," which is said to have occurred "in a child of 2 years of age," another "measles," another "congenital," simply, still another is "consanguinity," with an interrogation point, whatever that may mean. "Neuritis, whooping cough, uremia." etc., are also other assigned causes. Certainly none of these were obtained as the result of an accurate physical examination made by a competent examiner, and, for scientific purposes, they have practically no value whatever.

In some cases, however, the most exact and detailed pathologic statements are given and the record obtained is of corresponding value.

There should no doubt be a uniform record blank in every institution for the blind, on which the condition of each eye should be accurately specified, the age at which blindness occurred and the cause, so far as can be ascertained, on which the loss of sight was dependent. If this were carefully noted in all institutions, it would add another source of exact and practical, available knowledge.

But the most useful and easily accessible source of data of this character would be our own daily records. It would be a simple matter if each man had on his desk a printed blank on which an exact record could be made, taken from his case book, of the age and sex of the patient, the eye involved, the degree of blindness and, when ascertainable, the cause of the loss of sight. On this could be briefly included those cases presenting during the morning's work which came under the accepted definition of blindness, with an opinion as to whether or not it might have been prevented.

It is astonishing how relatively frequent are the cases in which but one eye is blind. But they probably would not number more than a dozen during the course of the week, and the accumulated observations made by a number of carefully trained men, while taking but a minimum of effort, would when aggregated give exceedingly valuable results. Such data must be secured before we shall have any absolutely dependable basis on which to establish our future work in prevention.

THE VALUE OF SOCIAL SERVICE

The prevention of blindness from the medical viewpoint may be interpreted in any terms which make for better care of the eyes. Most of our clinics are too large for the limited time in which a long line of people must be seen, and there is very little left for the consideration of the individual. We lose the human element, and this frequently is the key of the whole situation.

Here the great value of social service supplemental to and in harmony with the medical or surgical work is especially evident. In my service in the Charity Eye, Ear and Throat Hospital of Erie County a poor woman with several children presented herself with corneal ulcer. Before applying the conventional treatment the woman's appearance constrained me to ask if she had enough to eat. She reluctantly admitted that she was starving. A note to the Charity Organization Society verified her story, but developed the additional fact that a well-to-do relation would gladly aid her when he learned of her condition. It was necessary only to bring the two together. Treatment under such conditions would have been mockery until her immediate necessities had been supplied, and without proper nutrition a cure would have been impossible.

On another occasion a 16-year-old girl appeared with functional amblyopia in one eye. She had been visiting the clinic for some weeks before her home conditions were investigated. This poor child was found living alone with a decrepit, insane mother. When the mother had been put in a hospital for the insane and the child placed under proper influences, the hysteria which was possibly prodromal to more serious nervous disturbances spontaneously disappeared. The home surroundings, the social life, the conditions under which the eyes are used are frequently such as to make successful treatment of serious trouble impossible. Diseases of the eyes due to malnutrition from improper feeding are more commonly the result of ignorance than of poverty, and helpful advice as to the adoption of better methods is usually not only welcomed, but gladly followed.

It is often impossible for the physician, even if he had the time, to get behind the barrier of timidity and apprehension within which the poor patient is barricaded; and yet such knowledge is often essential to effect relief which can be obtained only by the intelligent and sympathetic intervention of the social visitor, who by supplementing and explaining the advice of the surgeon of the urgent necessity of an iridectomy for glaucoma or an enucleation for sympathetic ophthalmia may save eyes that through neglect would otherwise be lost. By the adoption of such measures as these the

frequency of visits on the part of the patient to the clinic will be greatly reduced and time will be allowed for other and more scientifically profitable cases.

PREVENTABLE INDUSTRIAL ACCIDENTS

Another cause of unnecessary blindness is found in the preventable industrial accidents. Johnston,[1] in an admirable article on this subject, divides these injuries into four classes:

1. Those occurring as the result of handling high explosives in mining and railroad construction.
2. Those occurring from the bursting of locomotive oil and water gauges.
3. Those occurring in mills, foundries, machine shops and the building trades.
4. Those occurring in the agricultural pursuits.

In precaution he advocates: (1) Government inspection of manufacture of all explosives; (2) licensing of "foundermen"; (3) protection of water and oil gauges by wire or plateglass screens; (4) the placing of guards on all emery wheels, lathes, etc.; (5) education of the laity as to the seriousness of even slight injuries when infected.

To this may be added, as Ayers of Cincinnati has shown, the danger of poor tools, which readily chip and which constitute another prevalent source of unnecessary injuries. The obligatory use of properly tempered steel hammers would materially limit the number of accidents of this character.

THE PREVENTION OF HEREDITARY BLINDNESS

Just how far it is practicable or possible for the state to exercise control in eugenics is still a moot question, but as to the urgent necessity of employing every moral agency in preventing the marriage of those whose progeny is sure to be defective there can be no question whatever.

In the New York State School for the Blind is a child who represents the fourth generation of blind individuals. These, with a collateral branch, number eighteen people who have inherited blindness from a great-grandmother, and most of these have been charges on the state. The least unhappy result of this unfortunate inheritance has been the cost to the state of thousands of dollars. The real tragedy is the bringing into the world of a race of weak-minded degenerates, whose propagation may be continued endlessly.

This is a public calamity. It is a duty resting on all of us that measures be taken whereby this frightful state of affairs be brought to an end. It would be economy and wisdom on the part of the state to make some provision for the permanent institutional care of such unfortunates, separating the sexes and preventing in every way possible the further increase of their kind. This is, indeed, but one phase of a large subject, but it is one demanding consideration and some form of effective action.

BETTER TRAINING NEEDED IN OPHTHALMOLOGY

It is an unfortunate fact, but one which must be admitted, that many eyes are lost through the inadequate training of those who assume to treat them. Many operations result badly, either because they were ill-advised or clumsily performed. For this we are ourselves largely to blame. We have no standard by which may be determined the qualifications of a physician who undertakes such expert and delicate work and work requiring such precise and technical knowledge as ophthalmology.

Recent graduates, after a few months of desultory observation in a large clinic and with inadequate preliminary training in physics, pathology or surgery, with the audacity of ignorance, attempt the most difficult operations on the eye, thereby verifying the classic though monstrous dictum of Baer, that "it takes a hatful of eyes to educate an oculist."

Modern aseptic methods have made the domain of surgery so tempting that it is not alone on the eye that operative sins are committed. Our most capable surgeons everywhere are recognizing the great dangers that are resulting from the bad work of unqualified men. It is a grave question whether the time has not come when our profession should consider the desirability of providing special degrees in surgery and ophthalmology, as has for so many years been done in Great Britain. An adequate curriculum and scholastic teaching, with a final degree in ophthalmology, given only to those of proved ability, as is now done at Oxford, were they provided in our great medical centers, where clinical material is so abundant and where the ablest teachers are to be found, would make it unnecessary for the ambitious student to cross the ocean in order to secure the best instruction in ophthalmology.

It is not the purpose of this paper to consider in detail the various preventable conditions which result in blindness, and no attempt has been made to deal with causes which would occur immediately to all who are familiar with the subject. Nothing has been said of Independence Day accidents, blindness due to wood alcohol and other toxic substances, of ophthalmia neonatorum and other forms of infectious diseases of the eyes, because all these have been more or less generally considered and it remains only to devise methods by which prevention may be made generally effective. But a vitally important subject, which has not received adequate attention, is the protection of the eyes of school children by securing for them suitably lighted and ventilated study rooms and properly printed books. It is in the school room that the foundation is laid in a large number of cases for the development of diseases which result in limitation of vision, if not in actual blindness.

It would seem that much might be accomplished by having a special committee from this Section representing the American Medical Association to consider all these subjects, to confer, if deemed wise, with a like committee chosen by the National Educational Association, so that these two great bodies, with possibly the cooperation of the various boards of public health, might together work out a solution of these problems for each of the states.

While many architects are familiar with proper forms of school construction and members of the association have worked out problems in lighting of rooms, relative size and character of lights, etc., there are no uniform regulations concerning the adoption of fundamental principles of hygiene and buildings continue to be erected and school books continue to be published so glaringly out of harmony with scientific methods that they ought not to be tolerated in progressive communities. Organized effort on the part of the medical profession for the purpose of obtaining better protection of the eye, if in conjunction with intelligent and discriminating social work, would do much in limiting the disasters which are due to controllable causes.

1. Ophthalmology, July, 1909.

There is no more splendid work in which we could engage than in preventing conditions which our best skill is so often unable to mend. Such work would add dignity and importance to our branch of the profession by making it an essential element in the general preventive movement which is now everywhere occupying public attention. It is especially important just at present when those engaged in large philanthropic movements have given us the encouragement of their support. The directors of the Russell Sage Foundation in recognition of the practical and effective means which had been adopted in almost all of the states looking toward the prevention of ophthalmia neonatorum, felt that the time had come when a greater work for the prevention of blindness, due to other causes, might wisely be undertaken. Supplementing their former generous appropriations which provided an office and staff for the committee on the prevention of blindness of the New York Association for the Blind, and which has cooperated so effectively with the Committee on Ophthalmia Neonatorum of this association, a further appropriation was recently made, making possible the employment of a trained man who would be prepared to assist the medical and sanitary committees in the various states in carrying out a plan of work similar to that which has been so effectively inaugurated in Massachusetts, New York and Ohio.

To make this successful, however, the hearty approval and cordial support of the medical profession is imperative. With this the possibility of far-reaching and effective results through these combined agencies is so great that the movement which has been started bids fair to be second in importance only to that for the prevention of tuberculosis. It is earnestly to be desired that action may be taken by the Section on Ophthalmology at this meeting in support of this movement thus assuring those who are doing so much to advance this cause of the approval of and cooperation of the members of the Association throughout the country in this important work.

454 Franklin Street.

ABSTRACT OF DISCUSSION

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind.: I think this subject demands further attention on the part of this Section, and it occurs to me that one of the ways of getting at the matter is to enlarge the sphere of usefulness of the Committee on the Prevention of Ophthalmia Neonatorum. It seems to me that this Section ought to further the study of blindness which has been inaugurated by Dr. Lewis, and I think he has prepared some resolutions touching on the subject.

The question of preventable blindness from trachoma is a very important one. To all intents and purposes the government seems to be rather rigid in the inspection of immigrants coming to this country, and yet to my personal knowledge cases of trachoma do get in, owing, of course, to laxity of inspection. Blindness from industrial accidents is also very important. Much of the blindness that occurs as the result of industrial accidents may be prevented by proper education of labor organizations as well as of employers of labor. I hope, therefore, that the scope of this committee will be enlarged and that this Section will stand sponsor for the work of the committee.

DR. LUCIEN HOWE, Buffalo: I think the same thing was in the minds of most of us, and it would be advisable to formulate a plan for an American association for the prevention of blindness.

DR. A. E. BULSON, JR., Fort Wayne, Ind.: To avoid multiplicity of committees why not enlarge the scope of the present committee? It seems to me the committee we have on the prevention of blindness from ophthalmia neonatorum is sufficient, but if necessary let that committee be enlarged, with the added duties mentioned by Dr. Lewis.

DR. J. A. DONOVAN, Butte, Mont.: About eleven people a day are killed by the railroads in the United States, to say nothing of the other industrial accidents, which are becoming numerous, so that I believe we should have a separate committee to consider this, and to educate the people in their prevention. Several years ago I read a paper on injuries from blasts in our section where we produce one-third of the copper mined in this country. Injuries from blasts have been reduced two-thirds through education of the people. These injuries and those from railroads and machine shops come mostly from new men. The employers are anxious to avoid these accidents, as claims are made amounting to hundreds of thousands of dollars every year. Some intelligent committee from this society that would study the prevention of blindness in the industries would have a subject broad enough to require its entire attention.

MISS C. C. VAN BLARCOM, Secretary New York Committee on Prevention of Blindness, New York: It seems rather pointless for me to address a body of ophthalmologists on the subject of the prevention of blindness, for I am only a lay-worker and view the problem from the layman's standpoint. However, since the courtesy of the floor has been extended to me, I am glad to speak on one or two questions which have already been touched on and which are, perhaps, of more importance than the medical profession in the abstract appreciates.

The question of the prevention of blindness is not a single definite piece of work, but is a complex and intricate undertaking, involving many problems, both medical and social. With one accord we look to the medical profession to initiate and guide the movement for the prevention of blindness, but we feel that the ultimate results will only be accomplished through harmonizing the many elements which bear on the solution of this problem. It is a social question, requiring education, legislation and cooperation for its solution, and so it seems to me that the work of preventing unnecessary blindness cannot be carried on by the medical profession alone.

That branch of the great work devoted to the prevention of blindness due to ophthalmia neonatorum is only one phase of the work, and I, and many others also, feel that we are weakening our cause by limiting it too closely to a medical campaign. Ophthalmia neonatorum and its resulting blindness must be prevented, but there are so many other causes of preventable blindness that the work ramifies indefinitely and we find ourselves overlapping and dovetailing with so many other workers that it is important that there be a coordination of those forces referred to in Dr. Lewis' paper, namely, physicians, sanitarians, educators and social workers. We feel strongly that the question of preventing unnecessary blindness from all causes must be approached from many standpoints, and that the desired end will only be accomplished through this hearty cooperation already mentioned.

MR. S. E. ELIOT, Organizer Russell Sage Foundation, New York: A word as to my appointment. The correspondence in this matter grew on the hands of Dr. Lewis and the New York committee to such an extent that it seemed justifiable to Miss Louisa Lee Schuyler, chairman of the committee on the prevention of blindness of the Russell Sage Foundation, to have a secretary appointed to go to the different states, work with the nucleus already furnished by the committees on ophthalmia neonatorum and organize associations on the lines of the New York association, of which Miss Van Blarcom is a representative. This work will have to proceed by working with local situations as they are found. As I go on the ground in any state I shall endeavor to ally all agencies connected with the subject, such as health boards, authorities connected with the schools for the blind, and the public schools, and finally the social workers, thus forming associations with part of the group composed of the medical men, and the rest composed of social workers and others who are working for this one end, the prevention of blindness.

DR. MARK D. STEVENSON, Akron, Ohio: It appears to me that in dealing with the general question of the prevention of blindness this Section ought to have a committee entirely from

its own members. The committee on ophthalmia neonatorum is very properly composed of a sanitarian, an obstetrician and an ophthalmologist, but of what special interest is the general prevention of blindness from industrial accidents, etc., to the obstetrician; or, for that matter, of what interest is it to the great majority of sanitarians? It seems to me the original motion which provided for the appointment of a committee from this Section by our chairman for the general prevention of blindness was the better one. The Committee on Ophthalmia Neonatorum should be a separate committee, possibly related to this one by having its chairman a member of this committee. This Section ought, above all, to be identified with and be responsible for this important movement for the general prevention of blindness.

[The Section adopted a resolution (printed in THE JOURNAL, July 2, p. 58) and sent it to the House of Delegates for approval. That body approved the resolution in modified form (THE JOURNAL, June 18, p. 2076).]

FALLACIES IN THE UNDERSTANDING OF ANTISEPTICS AND GERMICIDES WITH SPECIAL REFERENCE TO MERCURIC CHLORID *

MARSH PITZMAN, M.D.
ST. LOUIS

A study of this subject brings into discussion fundamental principles of surgery and is therefore, I trust, of general interest.

An infected wound in this country, in the hands of the majority of surgeons, is treated by a bichlorid of mercury moist pack. To this general procedure I take only the exceptions noted later. A large number of textbooks state and surgeons believe that mercuric chlorid exerts an antiseptic action on the bacteria within the tissues. That bichlorid of mercury as used does not exert such antiseptic action is my main proposition.

CHEMICAL CONSIDERATIONS

We must consider first the chemical structure of mercuric chlorid. As the name implies, two atoms of chlorin are combined with one of mercury. It is due to the mercury that mercuric chlorid possesses its specific action on syphilis and, in case of overdoses, its poisonous activity. It is due to the chlorin that mercuric chlorid possesses its caustic and general germicidal action; for mercury, combined with white of an egg at 1 to 1200, shows absolutely no antiseptic or germicidal action, though of course it would be antisyphilitic and poisonous.[1] Therefore, when mercuric chlorid is used as an antiseptic or germicide, the mercury atom is merely the carrier of the active halogen (chlorin).

In regard to the combination of mercuric chlorid with albuminous fluids, as employed in practical surgery, the literature is confusing and contradictory. That is due to the fact that a sharp distinction has not been drawn between mixtures of mercuric chlorid and albumin with, and those without excess of mercuric chlorid.

My work in the Hygienic Institute of Berlin proves, I believe, that mercuric chlorid combines with albumins in a direct ratio of quantities; that, until excess of mercuric chlorid is present in the mixture of mercuric chlorid and albumin, there is absolutely no antiseptic or germicidal action; further, that, when excess of mercuric chlorid is present in the mixture of mercuric chlorid and albumin, it acts promptly as a germicide, but never as an antiseptic against vegetative (non-sporulated) forms of bacteria. In human serum this division point—this point at which mercuric chlorid begins to exist as a free germicide—is approximately 1 to 10000.

Now let us turn to the practical application of these facts. If mercuric chlorid is to exert any trace of antiseptic or germicidal action on an infected area, it must exist in the affected part in amounts greater than 1 to 10000 of serum. As the albuminous fluids of the body are continuous and circulating, the affinity of all albumins of the body would have to be satisfied before there would be a local excess of free mercuric chlorid. On account of poisoning this is out of the question. Moreover, while free mercuric chlorid, in excess of 1 to 10000 of serum, would act as a germicide on all bacteria, it would be irritant, caustic, and destructive to the body cells as well. At the price of the destruction of body tissues, the use of free mercuric chlorid would again be out of the question. For these two reasons, I maintain that free bichlorid of mercury does not exist as an active chemical in the infected areas, and, therefore, has no antiseptic or germicidal action. Here I might well rest my case.

But the belief that bichlorid in practice does exert an antiseptic action on the progress of an inflammation, is so firmly fixed in the surgical mind that many will undoubtedly remain skeptical. Some, who have seen cases of salivation and even of mercurial poisoning from absorption, will insist that mercuric chlorid is absorbed and in quantities sufficient to exert a germicidal action. The answer is that salivation and poisoning are so extremely rare—are so uncommon even in large lacerated wounds—as to justify the conclusion that mercuric chlorid is but rarely absorbed into the body serum from a dressing. To put the question to a scientific test, however, during my service at St. Louis City Hospital in March and April, 1908, eight patients with large infected wounds, who had been treated throughout with liberal bichlorid packs, were directly examined for absorption. The chemical tests were based on the fact that mercuric chlorid absorbed into the serum is excreted in the urine. The work was done under Dr. Warren, professor of chemistry in Washington University. The method used was that in which organic matter was destroyed with potassium chlorate and hydrochloric acid; the mercury in the solution obtained was precipitated as sulphid, the sulphid dissolved in acid, and the mercury in this solution precipitated on copper wire. The test was sensitive, by control, beyond 1/500 grain bichlorid. In four cases, used as control, in which bichlorid medication was used internally, mercury was present in the urine. The eight patients under bichlorid pack all failed to show presence of mercury in the urine.

The literature contains no contrary reports.[2] Therefore I feel justified in concluding that mercuric chlorid, as used in a moist pack, is not ordinarily absorbed into the tissue fluids.

To recapitulate, I maintain that bichlorid of mercury does not exert its reputed antiseptic action on the bacteria in the tissues for the following reasons:

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* Read before the General Session of the Missouri State Medical Society, at Hannibal, Mo., May 4, 1910.

1. Pitzman, M.: Ueber das disinficierende Verhalten des Sublimats und Silbernitrats in Eiweisshaltigen Flüssigkeiten, Hyg. Rundschau, 1909, No. 12.

2. The classic researches are the following:
Koch, R.: Mitt. a. d. k. Gsndhts. amt., 1882, i.
v. Behring: Bekampfung der Infection-krankheiten, Leipsic, 1884.
Geppart: Berl. klin. Wchnschr., 1890, No. 11.
Kronig and Paul: Ztschr. f. Hyg., 1897, xxv, 100.
Other important references are to be found in Kolle and Wassermann's Handbuch der Pathogenen Mikro-Organismen, Jena, 1904, Vol. iv, Part 1, in the chapter on Disinfection, by Prof. E. Gotschlick.

1. It would have to exist in the tissues as excess free bichlorid, which is scientifically hardly conceivable.
2. If it existed as free bichlorid, it would destroy the body cells as well as the bacteria.
3. It is ordinarily not absorbed from a dressing.

CLINICAL CONSIDERATIONS

Like most other scientific facts, the one just demonstrated has its practical bearings, and these practical bearings are what has interested me in the subject. I do not advocate the rejection of bichlorid of mercury from practical surgery; far from it. My object has been simply to define what may rationally be expected of it. Neither do I advocate the substitution of other antiseptics or germicides. None other that I know of is more suitable for practical use. In fact, I should strongly advocate the use of the well-known antiseptics, whose powers and limitations we know, rather than "fly to others that we know not of."

Do any of the other germicides really exert an antiseptic action on the bacteria in the tissues? I feel confident that they do not, for, if they did, they would soon have superseded mercuric chlorid on clinical test. And certainly none has, or has had, the scientific standing of bichlorid of mercury. As regards the judgment of the newer antiseptics every day offered the medical profession, it is a peculiarly significant fact that, after more than twenty years of clinical and research work by the best medical minds of the age, there are still such fundamental differences of opinion in regard to our standard germicides.

Are antiseptics and germicides then valueless? On the contrary, their use from time immemorial has proved their immense value. Their prompt application to a fresh wound will prevent infection, and their use in infected wounds will in great measure prevent reinfection with a more virulent organism. If asepsis approaches perfection—which it does rarely—then antiseptics and germicides may be dispensed with in infected wounds. The strong surgical belief in the antiseptic action of chemicals on infected wounds is due, according to my best lights, to this check on the asepsis, this prevention of reinfection.

But there is a greater, a more serious fault, due in great part to the belief in the actual antiseptic power in the tissues. I refer to the neglect of rest, that first principle of surgery. Hilton's classic on "Rest and Pain," and, in modern literature, Ochsner's "Clinical Surgery," in which the arguments are put clearly, strongly and convincingly, must be unknown to many of the modern surgeons. In their eagerness to apply antiseptics, surgeons dress acute spreading infections many times during the twenty-four hours, to the neglect of rest! In cellulitis they incise before pus can localize, so that the antiseptic may penetrate, again forgetful of that prime requisite, rest! The belief in the actual antiseptic power of chemicals must bear its full share of that grave charge—than which there is no fault more crying in modern surgery—the neglect of rest.

In more serious infections the error of using strong antiseptics is common, and often grave in its consequences. If the solution be strong, or the skin irritable, so that a dermatitis follows, rest would be disturbed. In such cases therefore it is important to use a very weak antiseptic, or perhaps preferably plain water or saline solution. Such a pack with splints should be undisturbed for at least forty-eight hours, as Ochsner so convincingly shows. To those who have accepted my argument there can no longer be mystery in the use of the saline pack.

The question of cleansers, stimulants, astringents, ointments, and dusting powders has been purposely omitted from the discussion, on the ground that their action is not due to their antiseptic or germicidal properties. Often confusion arises from the fact that the same chemical may be used for different ends; as, for example, silver nitrate as a germicide prophylactic against ophthalmia neonatorum, whereas in chronic conjunctivitis its use is dependent on its stimulating and astringent qualities. The question whether the clinical value of many chemicals is due to their antiseptic, or, on the other hand, to their cleansing, stimulant, or astringent properties, is in many cases still *sub judice*.

In conclusion let me state that I practice what I preach. I shall not insult your intelligence, however, by reporting cases which, in comparison with the observed material, could be but as a drop in an ocean.

FURTHER INVESTIGATIONS REGARDING THE ETIOLOGY OF TABARDILLO, MEXICAN TYPHUS FEVER *

H. T. RICKETTS, M. D., AND RUSSELL M. WILDER
CHICAGO

In a previous article[1] we have reported certain experiments which indicated the rôle of the body louse (*Pediculus vestamenti*) in the transmission of Mexican typhus fever. Since that date we have been able to confirm the results of our first investigations, and also to obtain certain other experimental data concerning the etiology of this disease. The experiments which we wish to report at present[2] relate to the hereditary transmission of the infectivity of the louse and the possible rôle of the bedbug and the flea in the transmission of typhus.

HEREDITARY TRANSMISSION OF THE INFECTIVITY OF THE LOUSE

The following experiment was undertaken with a view to determining whether the young of infected lice were themselves infected. The adult louse contains in its ovaries many mature eggs. These eggs are covered with a compact shell which we thought might prove impermeable to micro-organisms. Hence it was decided to rear young lice to maturity on the bodies of typhus patients, so that if the eggs were susceptible to infection at any stage of their development, they would have every opportunity of being infected within the ovary.

On March 29, 140 adult lice of Group 17 (*Pediculus vestamenti*) 70 males and 70 females, were placed in a stocking on the leg of a typhus patient (No. 41). The stocking was sealed above with adhesive tape to prevent the escape of any of the insects. Two days later 1,000 eggs were found adhering to the fibers of the stocking. The lice were removed and replaced on the patient in a fresh stocking, while the stocking containing the eggs was put on the patient's other leg. Approximately 800 more eggs were subsequently laid by this generation of lice.

By April 6 many of the eggs began to batch and by April 15 about 500 young lice had been collected.

* From the Department of Pathology of the University of Chicago and the Memorial Institute for Infectious Diseases, Chicago.

1. THE JOURNAL A. M. A., April 16, 1910, p. 1304.
2. It is planned to publish at some later date a more comprehensive report of our investigations of typhus fever.

These were placed in a fresh stocking which was kept constantly on the leg of a patient in an early stage of fever. For this purpose Patients 47, 49, 50, 52 and 53 were used. Many of the young lice died but approximately 250 of them reached maturity and in turn laid eggs.

When a sufficiently large number of these presumably infected eggs of the second generation had been obtained, all of the adult lice were removed and placed in a new stocking on the same patient. The stocking containing the eggs was then sealed and incubated between the sheet and the mattress of a patient in an early stage of convalescence.

Monkey 42, of the species *Macacus rhesus,* who served for this experiment, had been recently imported into Mexico from a district free from typhus. As the eggs hatched, the young lice were collected and placed on this normal monkey in the following manner. The animal's skin was shaved over the entire abdomen and a piece of finely woven linen, two inches by three, was tightly secured to the skin by means of a border of two-inch adhesive tape. One edge of the cloth was left unattached and the open end of a tube containing the young lice inserted beneath this edge, the lice being dumped into the pocket formed between the cloth and the skin. The mouth of the pocket was then sealed with tape and the animal clothed in a heavy canvas jacket in order to prevent interference with the lice. Thus on April 28 fifty young lice were placed on the monkey. On April 30, thirty more were added. At this time it was noted that the lice of April 28 had fed, their bodies being gorged with blood. On May 2, twenty-five additional lice were collected from the stocking and placed on the monkey. Thus in all 105 lice, the offspring of infected lice, but themselves never directly infected, were given an opportunity of feeding on Monkey 42.

Unfortunately the temperature of this animal could not be taken regularly during the following three or four weeks, nor was he under very careful observation during this period. On May 26, however, he appeared to be in good health. But more important is the fact that he proved resistant to a subsequent immunity test described below.

In our work on transmission with lice we have, with one exception, never succeeded in provoking a very characteristic febrile reaction in the macacus monkey by means of the bite of lice, the relative insusceptibility of the monkey to typhus probably accounting for his resistance to infection by lice. It has been found, however, that monkeys who have been subjected to the bites of infected lice are thereby rendered immune to subsequent inoculations of typhus blood which constantly provokes in normal monkeys a high febrile reaction. This immunity has been interpreted as indicating that the animal has been infected by the lice and has suffered a mild attack of typhus, and the immunity test thus constitutes the chief criterion for determining whether or not an animal has been infected by insects.

Such an immunity test, consisting of the intraperitoneal inoculation of 3.5 c.c. of virulent typhus blood from a typhus patient (No. 58) was given to Monkey 42 on May 27. For the following three weeks the animal remained in perfect health, although controls inoculated with the same quantity of the same material all contracted a typhus of moderate severity, their temperatures maintaining an elevation of 104 to 105.7 F. for a period of ten or eleven days.

Table 1 shows the temperatures of Monkey 42 on the successive days following the inoculation, Table 2 those of the control monkey (No. 44).

TABLE 1.—IMMUNITY TEST OF MONKEY 42

	A. M.	P. M.		A. M.	P. M.
May 28	102.6	102.2	June 10	102.3	102.1
May 29	101.6	101.9	June 11	102.0	102.5
May 30	101.2	101.9	June 12	102.0	102.8
May 31	101.6	102.0	June 13	100.8	102.0
June 1	101.4	101.8	June 14	99.6	100.6
June 2	101.6	102.2	June 15	100.3	101.5
June 3	102.0	102.4	June 16	101.2	101.4
June 4	101.6	102.4	June 17	100.9	101.9
June 5	*104.1*	*103.7*	June 18	100.4	102.0
June 6	*103.2*	103.0	June 19	101.0	102.2
June 7	*103.0*	102.8	June 20	100.8	101.7
June 8	101.6	103.0	June 21	100.2	102.4
June 9	100.4	102.2	June 22	101.3	101.8

TABLE 2.—TEMPERATURE OF MONKEY 44 FOLLOWING INOCULATION WITH TYPHUS BLOOD

	A. M.	P. M.		A. M.	P. M.
May 28	102.3	102.5	June 8	*104.0*	*105.5*
May 29	102.0	102.5	June 9	*104.1*	*104.7*
May 30	101.9	102.0	June 10	*105.6*	*103.9*
May 31	101.5	102.3	June 11	*104.6*	*105.2*
June 1	100.6	101.6	June 12	*103.2*	*103.1*
June 2	101.6	*103.7*	June 13	101.6	102.1
June 3	*102.6*	*103.3*	June 14	101.0	102.2
June 4	*105.6*	*105.7*	June 15	101.0	101.6
June 5	*104.0*	*104.3*	June 16	100.6	101.6
June 6	*103.3*	*103.3*	June 17	100.3	101.0
June 7	*103 5*	*104.9*			

It has been our experience to find a great variation in the daily temperatures of normal macacus monkeys. These animals are prone to slight intestinal disorders and a sporadic elevation of one, or even two degrees, has been frequently noticed. The normal afternoon temperatures of many of our monkeys lay constantly between 103 and 104 F. Hence there arises a certain difficulty in interpreting the slight elevation of temperature shown by Monkey 42 on June 5 and June 6. This may or may not be a mild effect of the virus, but in any case the effect was far less than that obtained before in all normal animals, including the control monkey (No. 44) of this particular experiment, and it is quite probable that the elevation observed was purely accidental.

We appreciate that the result of one experiment does not constitute decisive proof, but the definiteness of the result justifies us, in our opinion, in concluding that Monkey 42 owed his immunity to his previous infection by the young lice of Group 17, and that hereditary transmission of the infectivity of the louse is established to the extent of reasonable probability.

INFECTIOUSNESS OF THE FLEA AND OF THE BEDBUG

Theoretical considerations make it seem extremely probable that neither the bedbug nor the flea plays any rôle in the transmission of typhus. We have called attention to this in a previous article,[3] and Anderson and Goldberger[4] have expressed the same opinion. The bedbug is only rarely carried about in the clothing and yet it is well known that people who handle the clothing of typhus patients, such as laundresses and servants, are frequently stricken with typhus. A number of cases of typhus have occurred during the last year among the nurses and servants of the typhus pavilion of the general hospital of Mexico City. A careful search failed to reveal any bedbugs in this building. Furthermore, if the bedbug transmitted typhus we should expect the disease to be a "house disease"; but cases are constantly occurring which it is impossible to trace to any "typhus house."

3. THE JOURNAL A. M. A., Feb. 5, 1910, p. 463.
4. Pub. Health Rep., Feb. 18, 1910, No. 7.

The flea also seems innocent. Did it play any rôle, the distribution of typhus in Mexico City would be much more general than is the case, for the flea is widely distributed. Typhus, however, is confined almost exclusively to those living under less satisfactory hygienic conditions. Finally, as previously mentioned, the season of typhus is the winter and early spring whereas the period of greatest prevalence of the flea is the summer.

In order to throw further light on this question the following experiments were undertaken.

EXPERIMENTS ON THE INFECTIOUSNESS OF THE BEDBUG

A group of about fifty bedbugs was fed on three successive days on patients at the general hospital. The bugs were confined beneath a small wide-mouthed glass bottle inverted over the skin of the patient. In this way ten or twelve could be fed at one time. All were given the opportunity of gorging themselves with blood.

On April 2, two days after their last feeding on a patient, they were placed on the shaved abdomen of a monkey (No. 35) and allowed to feed. On April 3 they were again placed on the monkey, only eight feeding. On April 4 they were not fed. On April 5, twenty-eight bugs fed well on the animal; April 6, eighteen bugs fed lightly; April 7, seventeen bugs fed lightly; April 12, 29 bugs fed well, gorging themselves with blood.

The animal showed absolutely no rise in temperature, and continued in excellent health during the following thirty-two days. Unfortunately he died from an accident before an immunity test could be given him, and hence the experiment cannot be taken as proof of the non-infectiousness of the bedbug. It does seem to eliminate the possibility that the bedbug can transmit typhus more readily than can the louse, in so much as both the period of feedings on the infected host and the period of feeding on the monkey were considerably in excess of the feedings of the louse in certain of our experiments.

EXPERIMENTS ON THE INFECTIVITY OF THE FLEA

Human fleas, of flea Group 2, were infected by repeated feedings on typhus patients at the general hospital in the following manner: One or two fleas were confined in each of several long and narrow tubes. These tubes were made of 4 mm. glass tubing, were sealed at one end and cut sufficiently long (20 cm.) to prevent the escape of the flea by jumping. For this purpose also they were slightly bent in the middle. The fleas were fed by inverting this tube on the patient's skin.

Subsequent to their last feeding the fleas were allowed to rest for about sixty hours. The entire bodies of ten of the group were then emulsified in physiologic salt solution and rubbed into scarifications of the abdominal skin of a normal monkey (No. 41), the technic employed in this procedure being the same as that used in the scarification experiment performed with the intestinal contents of lice and previously reported[1]. The wounds healed with but little suppuration. The animal's temperature was taken twice daily for the following thirty-four days and during this time he remained in perfect health.

On May 27 this monkey was given an immunity test, receiving an inoculation of 3.5 c.c. of typhus blood from patient 58. After an incubation period of seven days he began to run a fever which lasted for twelve days, his temperature being recorded in table 3.

TABLE 3.—TEMPERATURE OF MONKEY 41 AFTER RECEIVING AN IMMUNITY TEST

	A. M.	P. M.		A. M.	P. M.
May 28	102.6	102.6	June 10	*104.4*	*105.0*
May 29	101.8	102.0	June 11	*104.4*	*105.6*
May 30	102.3	102.8	June 12	*103.6*	*105.5*
May 31	101.6	102.6	June 13	*104.6*	*104.8*
June 1	101.9	101.9	June 14	*103.5*	*104.8*
June 2	101.9	102.7	June 15	*103.9*	*103.5*
June 3	101.4	102.3	June 16	102.9	102.8
June 4	*103.1*	*104.1*	June 17	102.5	102.8
June 5	*104.5*	*104.5*	June 18	102.5	102.0
June 6	*103.1*	*104.1*	June 19	101.5	101.8
June 7	*105.0*	*105.3*	June 20	101.6	102.5
June 8	*103.2*	*103.6*	June 21	101.5	102.6
June 9	101.4	*103.1*	June 22	101.9	102.3

On June 4, a leukocyte count was made[5] which showed 30,350. The animal was very irritable and his coat dry and ruffled. On the 5th he had diarrhea and until the 14th of the month seemed very sick.. His subsequent recovery was rapid and complete.

In brief, No. 41 had not been infected by the fleas, as is shown by the fact that he was not immune to a subsequent inoculation of typhus blood.

These results seem to strengthen our previous position as to the unimportance of the flea and the bedbug in the transmission of Mexican typhus fever.

We take pleasure in expressing our obligations to Dr. Liceaga and his assistants of the Superior Board of Health of Mexico, to the authorities of the general hospital and to Dr. Goviño of the Bacteriologic Institute for numerous courtesies. In particular we wish to acknowledge our indebtedness to Dr. Genarø Escalona, Dr. Francis E. Prestley and Sr. D. Perez Garça, of Mexico City, for cöoperation and assistance.

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THE VALUE OF COMBINATIONS OF NARCOTICS AND ANTIPYRETICS

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It is a well-known fact that certain drugs acquire their highest therapeutic efficiency in combination with other drugs. In such combinations not only is their therapeutic effect increased, but in addition possible disagreeable by-effects are neutralized and not infrequently the therapeutic action of the adjuvant is made more prominent. As familiar examples of such combinations may be mentioned iron and arsenic, mercury and potassium iodid, quinin, iron and arsenic or strychnin. Furthermore, I have observed that the disagreeable effects of chloral may be minimized by combining it with a bromid, codein or morphin. Well-known are the excellent results which have been obtained by the combination of morphin and atropin, morphin and scopolamin, cocain and adrenalin, and lately a combination of physostigmin and pilocarpin has been highly recommended in the treatment of glaucoma. In this connection I will discuss a number of combinations of narcotics with the synthetic antipyretics, drugs which have played a prominent rôle in modern therapy.

Soon after the introduction of lactophenin by Jaksch in the treatment of typhoid, I experienced in two different patients symptoms of severe collapse after ordering therapeutic doses of this drug.[1] Doubtless there occurred here the well-recognized profound toxic action of this p-amido-phenol derivative on the ganglion cells of

1. N. Y. Med. Monatschr., November, 1903.

5. Leukocytosis is observed in nearly all cases of typhus in man. In conjunction with Dr. Francis E. Prestley of Mexico City, we have made a series of leukocyte counts of most of the monkeys in our possession. It was found that monkeys sick with typhus fever usually showed a marked increase in the number of white blood corpuscles over the normal which approximates 12,000. Differential counts based on the same material will be reported in a later communication.

the motor zones in the cerebrum and medulla oblongata. Whether these patients had an idiosyncrasy for the drug or not it is impossible for me to say, because the severity of the typhoid and the collapse precluded a continuance of the drug. Since then, I have used lactophenin in combination with caffein citrate and codein and have never again witnessed toxic effects. Conditions are similar in regard to acetanilid. If acetanilid is given alone, toxic symptoms are liable to ensue, owing to its cumulative effects, due to the low solubility of this drug and the consequent accumulation of considerable quantities of anilin oil in the intestine. This drug acts on the motor centers in the cerebrum and the respiratory center in the medulla similarly to lactophenin. The toxic effects can be minimized by combining acetanilid with bromids, codein, caffein, etc. The reason why acetanilid in the proprietary headache powders as an analgesic or antipyretic does not more frequently cause toxic symptoms is that the drug is usually combined with one or more of these adjuvants. Combinations of the synthetic antipyretics are most efficient in the treatment of acute febrile diseases and inflammations of various character than when either of these drugs is used alone and without a narcotic, an observation which I made soon after the introduction of phenacetin into our therapeutics.

In this connection I may mention the interesting experiments of Spiess,[2] that inflammations are very susceptible to cure if the reflex in the sensory centripetal nerve from the focus of the inflammatory process can be excluded (areflexia). This may be obtained by excluding the pain, which is caused by the irritation of the sensory nerve, by a narcotic; in this way the hyperemia disappears, though the sympathetic inervation of the blood-vessels remains intact. As proof of this theory, Spiess cites the example that in sleep the active phenomena of inflammation subside and that in syringomyelia and hysteria severe destructive processes may occur without active inflammatory phenomena. He also believes that the healing effect of Bier's hyperemia—the subsidence of the symptoms of inflammation—is brought about by the disappearance of pain, which phenomenon in turn relieves the active congestion. According to Hans H. Meyer[3] the narcotic effects of anesthetics and narcotics are due to the fact that a physical alteration in the composition of the cell lipoids is brought about by these drugs causing a change in the ion-permeability of the cells, and hence the chief cause for the chemical process of irritation and inflammation should be abolished in this way.

Two simultaneously or successively administered narcotics act more quickly and more powerfully than the simple addition of the effects of these two narcotics, would indicate.[4] This multiplication of narcotic effect of two different narcotics or anesthetics is particularly pronounced when these two substances are not related chemically. As an instance I would cite the administration of a small dose of morphin before a general anesthetic or scopolamin and morphin, in obstetric practice I have also shown (in collaboration with Dr. Reich.[5]) that the administration of veronal a few hours before any surgical operation is performed will reduce the quantity of the general anesthetic required to a surprising extent. Buergi[4] asserts that the cells can absorb more of the pharmacologically active substance out of a mixture of drugs when the cell possesses a different receptor for each substance. When two drugs have the same cell receptor, as the narcotics of the fatty acid series, for instance (paraldehyde, ethyl carbamate (urethane), chloral), when given in combination, their narcotic action is not a multiple, but merely an addition of the effects of the two drugs combined. According to Buergi, lactophenin, antipyrin, pyramidon and phenacetin possess definite narcotic properties and their subcutaneous injection enhanced the action of pure narcotics, as urethan, for instance. The antipyretics have much in common in their therapeutic effects with the hypnotics. My experience with acetylsalicylic acid (aspirin) and other salicylic acid derivatives taught me that their beneficial therapeutic action as antipyretics was due chiefly to their anestheic and narcotic effect. For this reason, I have been using for many years with excellent therapeutic results in the treatment of infectious fevers (influenza, rheumatism, pneumonia, etc.) a combination of phenacetin (0.25—0.5 gm.) salicylate of soda (0.5—1.0 gm.) caffein citrate (0.03—0.05 gm.) and codein sulphate (0.01—0.02 gm.). The leading thought in this and similar combinations of medicaments is to attack the disease on various points. The excellent clinical results obtained by such drug combinations have been reported repeatedly,[6] but only experiments of Spiess and Buergi gave them a scientific foundation.

224 West Twenty-fourth Street.

2. München. med. Wchnschr., 1906, p. 348.
3. München. med. Wchnschr., 1909, No. 31.
4. Buergi: Deutsch. med. Wchnschr., 1910, Nos. 1 and 2.
5. Therap. Monatschr., July, 1908

A STUDY IN THE PREVENTION OF ADHESIONS *

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For many years papers have appeared intermittently recommending the use of oil in the peritoneal cavity to prevent the formation of adhesions.

When we began our work in the laboratory on this subject we could find no paper dealing with it from an experimental standpoint; though while this work was in progress the paper by Wilkie[1] appeared. He formed adhesions in twelve animals (cats) by irritating the peritoneum. At the end of six or eight weeks these adhesions were broken down and in six of the animals a liquid paraffin was smeared over the raw surfaces. At the end of a month the animals treated with the paraffin showed fewer and less dense adhesions than the controls. The oil was not found free in the peritoneal cavity after fifteen days in macroscopic quantities.

In the work performed by us we have used dogs entirely and have compared the value of olive oil and a colorless liquid petrolatum. Every experiment has been controlled, the animals being used in pairs. The peritoneal cavity in both dogs being irritated in the same way. The peritoneal surfaces were cauterized or scraped until they bled and in some cases strips of the peritoneum were removed with scissors. One of a pair of dogs so treated received 25-35 c.c. of oil in the peritoneal cavity, after the peritoneum had been injured.

6. Treupel: Deutch. med. Wchnschr., 1909, No. 46.

* From the Laboratory of Pathology of the University of Louisville.

1. Wilkie, D. P. D.: Surg., Gynec. and Obst., February, 1910.

PROTOCOLS OF EXPERIMENTS WITH OLIVE OIL

Here are typical protocols of such experiments, olive oil being used in these cases to prevent the formation of adhesions.

Dog 9.—The animal was operated on Feb. 8, 1910. The parietal peritoneum was scraped on the right and left sides until it bled, also several loops of intestine, and three sterile pith-balls were placed in the cavity and olive oil (about 30 c.c.) was then poured into the abdominal cavity. The dog was killed Feb. 15, 1910—that is, one week after the operation.

Autopsy.—Free olive oil, about 25 c.c. was found in the abdominal cavity. There were very slight adhesions of the omentum to the parietal peritoneum on the right side, while the left side showed no adhesions, nor were there any between the intestinal loops.

Dog 10.—This was a control, operated on Feb. 8, 1910, and killed Feb. 15, 1910, one week after operation. It was given exactly the same treatment as Dog 9, except that no oil was put into the abdominal cavity.

Autopsy.—The parietal peritoneum was firmly adherent to the omentum on both right and left sides, and the loops of intestine were adherent to the parietal peritoneum in five places. There were numerous adhesions between loops of the intestine, and the pith-balls were bound up in adhesions on the surface of the intestines.

Dog 11.—The animal was operated on Feb. 9, 1910, and killed March 2, 1910, three weeks after operation. The parietal peritoneum, liver and portions of intestine were scraped with a knife until they bled. Olive oil (about 30 c.c) was poured into the abdominal cavity.

Autopsy.—No adhesions were found. Olive oil completely filled the cavity, about 20 c.c being removed.

Dog 12.—This was a control, treated the same as Dog 11, except that no olive oil was used.

Autopsy.—The liver was adherent to the parietal peritoneum, and there were dense adhesions between the loops of intestines.

Dog 20.—The animal was operated on Feb. 21, 1910, and killed March 7, 1910. The parietal peritoneum was scraped over as large an area as could be reached and olive oil was poured into the abdominal cavity.

Autopsy.—Two weeks after operation the autopsy showed scar tissue where the parietal peritoneum was scratched. There were no adhesions in any portion of the abdominal cavity. Clear yellow oil, about 10 c.c., was found in abdominal cavity.

In the ten dogs treated with olive oil only one showed any adhesions, and in that case only along the line of incision between the peritoneum and omentum.

PROTOCOLS OF EXPERIMENTS WITH LIQUID PETROLATUM

In six dogs treated with liquid petrolatum all but one showed adhesions.

Dog. 24.—The animal was operated on March 14, 1910. The parietal peritoneum was scraped until it bled, and then liquid petrolatum, about 30 c.c., was poured into the abdominal cavity. The dog was killed April 7, 1910.

Autopsy.—Firm adhesions of intestines to parietal peritoneum were found. A small quantity of liquid petrolatum (about 5 c.c) was found in the abdominal cavity, in an emulsified form.

In twelve dogs in which no oil was used adhesions were found in all but one. On another series of dogs the peritoneum was irritated and then the wound closed, and adhesions allowed to form. At the end of two or three weeks they were opened and the adhesions broken down.

In one dog in each case the wound was at once closed without any further treatment. In the other, oil was introduced and the wound then closed. The dogs were allowed to live three or four weeks after the second operation. In those in which olive oil was introduced the adhesions were not reformed, but the controls and those treated with liquid petrolatum showed the presence of numerous adhesions.

The following is a protocol of such an experiment with liquid petrolatum.

Dog 14.—The animal was operated on March 11, 1910. The intestines were scratched until they bled. The abdomen was reopened on March 17, 1910. Adhesions of intestines were found along the right and left side of parietal peritoneum and also between the loops of intestines. The adhesions were broken up and 30 c.c. of liquid petrolatum poured into the abdominal cavity.

Autopsy.—March 30, 1910. Adhesions of intestines to parietal peritoneum were found and of loops of intestines between themselves. Liquid petrolatum was found in an emulsified form.

In the following case both olive oil and liquid petrolatum were used at different times on the same dog:

Dog 13.—The animal was operated on Feb. 14, 1910. The parietal peritoneum was scraped till it bled freely. Olive oil (30 c.c.) was introduced into the abdominal cavity, which was reopened on March 11, 1910. No adhesions or olive oil were found in the abdominal cavity. There was scar tissue where the parietal peritoneum had been scraped. The small intestine and peritoneum were scraped and liquid petrolatum poured into the cavity.

Autopsy.—March 30. The intestine was found very firmly adherent to the parietal peritoneum in several places. Liquid petrolatum was found in the abdominal cavity in an emulsified state.

BEHAVIOR OF THE OIL IN THE PERITONEAL CAVITY

At the end of three weeks we have uniformly found 5 to 20 c.c. of clear olive oil in the peritoneal cavity. At the end of four weeks the olive oil may still be present but not usually in sufficient quantity to measure. Liquid petrolatum on the other hand, is absorbed slightly sooner and forms an emulsion within the cavity. In other words, it does not form a film over the serous surface, as does the olive oil, which later forms a definite oily layer over the whole peritoneal surface.

In the case of olive oil two points have to be guarded against.

The first is that the olive oil must not be heated to such an extent that the fatty acids will be liberated. It may be sterilized at 115 C. for fifteen minutes. This temperature is not sufficient to split the oil. If free fatty acids are present they irritate the peritoneum and the oil is found as a thick white emulsion which on microscopic examination shows the presence of enormous numbers of polymorphonuclear leucocytes, though even with this irritant, adhesions were not found.

The second point to be guarded against is allowing the oil to come into contact with the tissues about the abdominal incision. This may be done in two ways; the first is by pouring the oil into the peritoneal cavity by aid of a funnel whose end reaches well within the cavity, and the surface of the wound carefully retracted upward during the closure. The second method, and without question the better, is the introduction of the oil into the peritoneal cavity by the use of a large syringe attached to a needle whose inside diameter is at least 1 mm. After the needle is withdrawn the abdomen is gently massaged so as to spread the oil throughout the cavity.

CONCLUSIONS

1. Olive oil does seem to prevent the formation of adhesions in dogs and is worthy of a thorough trial in human surgery.

2. Liquid petrolatum has but slight value for such a purpose.

PNEUMATIC ILLUMINATED INFANTILE SIGMOIDOSCOPE

A NEW RECTAL INSTRUMENT

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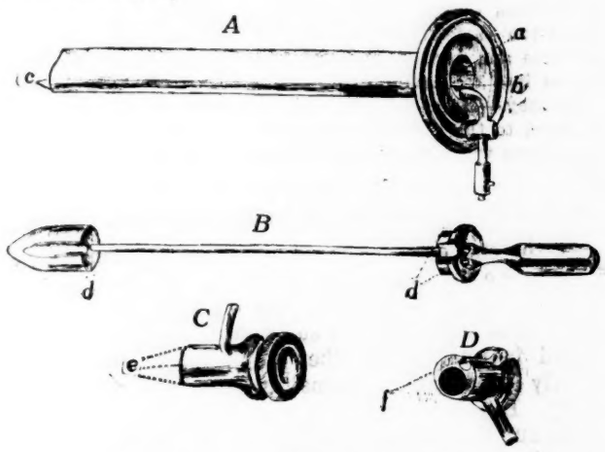
This instrument was designed primarily for the examination and treatment of rectal diseases in children. Reflected light gave very unsatisfactory results because of the resistance and struggle of the little patients. The light could not be placed and fixed at the point to be examined as it can with this instrument. These drawings and designs were made by me and sent to the Electro-Surgical Instrument Company of Rochester, N. Y., who produced a most satisfactory instrument. It is simply a modification of Dr. James P. Tuttle's 6-inch illuminated pneumatic proctoscope. I claim originality only for the instrument being made for the examination and treatment of children. The modifications are as follows:



Pneumatic illuminated infantile sigmoidoscope; actual working length of instrument (*A*) 6 inches; inside diameter of tube (*a*) ⅝ inch; *b*, auxiliary chamber or tube for light-carrier wholly within the main tube of instrument; *c*, flint-glass bulb fitted in distal end of auxiliary tube to protect light-bulb; *B*, obturator, diameter (*d*, *d*) ⅝ inch; *C*, window, outside diameter (*e*) ⅝ inch; *D*, window showing slot for carrier (*f*).

1. The instrument is very much reduced in caliber.
2. The auxiliary chamber is placed wholly within the tube in order to make the instrument as small as possible and yet give ample room for making applications through it.
3. The obturator is more tapering than those of the Tuttle instrument. This facilitates its introduction into an invaginated bowel and during the straining of the child.
4. On account of the smallness of the instrument, the window had to be so constructed that the light-carrier must be removed before the introduction or removal of the window. The light-carrier and lights are the same as in the Tuttle instrument.

The instrument was primarily and originally designed for the treatment of rectal diseases in infants and children, but on an extended use of it I find it a most useful instrument for diagnostic purposes in all kinds of cases, both of children and of adults. It is particularly useful in all irritable and painful conditions of the anus, such as strictures, fissures and fistulas; and in nervous women and timid men. I have found it very serviceable in making hasty and painless treatment of all conditions of the rectum and lower sigmoid. It is very easy of introduction, even in infants. When made 6 inches long, the instrument serves the triple purpose of an anoscope, proctoscope and sigmoidoscope for infants and children.

Therapeutics

SOLID CARBON DIOXID

It has long been recognized that most abnormal tissues can be removed most quickly and satisfactorily with the knife. Under some circumstances, however, burning the tissues by means of the actual cautery or the electric cautery has seemed to possess distinct advantages. In a limited range of cases destruction by electrolysis produces results which cannot be obtained equally well in any other way. It is only rather recently that the destruction of tissue by means of extreme cold has become practically available in the treatment of a variety of superficial lesions, in which the methods of treatment hitherto employed have not accomplished as good results as seemed desirable both to the patient and to his physician. This form of treatment has been rendered available by the recent progress in physics which has enabled the profession to obtain atmospheric air in the liquid state, and carbonic acid as a solid. The difficulty in reducing air to the form of a liquid is so great and the process is so expensive that it has been used far less extensively than the solid carbonic acid.

Although carbonic acid in its natural state is a gas, it is a well-known chemical fact that by the combined action of pressure and low temperature it can be reduced to the form of a liquid. This change takes place under a pressure of thirty-six atmospheres at a temperature of 32°F., or 0°C., the freezing-point for water. At ordinary temperatures a pressure of fifty or sixty atmospheres would be requisite.

Liquid carbonic acid is colorless and transparent, and when exposed to the air evaporates rapidly with the result that a far higher degree of cold is produced, and this results in a part of the fluid being reduced to a loose white solid substance, which disappears without resuming the liquid form. The change of the solid into the gaseous state occurs more slowly than the evaporation of the liquid, and, for this reason, it becomes available for therapeutic use. The temperature of the evaporating solid is about —80 C. This may be reduced to 110 C. by mixing the solid with ether.

Dr. William S. Gottheil, of New York City, (*New York State Journal of Medicine,* January 1910) in an instructive, practical article gives minute details for preparing the carbonic acid snow. The carbonic acid is procured in the form of a compressed gas in tanks holding twenty gallons which are in common use in soda water fountains to carbonate water, and in saloons to furnish pressure for beer pumps. It has also been used for quickly freezing tissues for microscopic examination. Gottheil describes the manipulations incident to preparing the solid mass of carbonic acid as follows: "The screw-cap over the vent having been removed, a towel folded so as to form a cylinder with a hollow the size of the mass required is firmly bandaged onto the vent. There is no limit to the size or shape of the hollow receptacle thus made; I usually have mine twice the thickness of a broomstick in diameter and four or six inches in length, so that I have a good handle to work with. If a large flat mass is needed the receptacle is shaped accordingly. A piece of chamois skin or blotting paper may be used inside the towel or between its folds; the closer texture facilitates the hard freezing of the outer layers of the mass, but this is not necessary. An important point is the very tight and thorough bandaging of the towel-cone to the neck of the vent. As much

resistance to the gas pressure as is possible together with a porous material that will allow the ice to freeze up in its interstices is required. The entire appliance is then firmly closed and bound up with another bandage. Improper closure, and especially insufficient bandaging around the vent permits the too rapid escape of the gas and inefficient packing of the ice.

"The cylinder is then laid on a table or chair, partially inverted so that the vent is lower than the body of the container, and by means of the key and upper stopcock, the gas is allowed to run into the towel cylinder fairly slowly. There will be some escape of gas and snow under any circumstances; but the less there is the more successful will be the drawing. If there is a large escape at any one point, and this is especially prone to occur around the vent, it must be reinforced with more bandaging. The gradual hardening and getting cold of the bandaged mass shows the filling of the cylinder with the solid material; and the dioxid is frozen solid in the interstices of the containing towel, chamois, and bandages. There is now a mass of softer solid dioxid contained in a hard resistant envelope of frozen material, and this must be packed into ice. The stop cock is now opened wider so that gas escapes in a series of short and violent jets; a distinct crackling of the mass shows that solid hard ice has formed. The tank is then closed, the bandage removed, and the solid dioxid ice is ready for use. It will always be found that the hardest part of the ice cone is that formed at the vent of the cylinder; hence that is the end to be employed when applications of extended time and with pressure are to be made."

By this method a mass may be obtained of any degree of hardness and of any size. It may be shaved or whittled into any desired shape. Being formed in large and solid masses it will last for hours if properly protected, so that it can be prepared in the office and carried to the patient's home. Wrapped in paper and placed in the ice box, or out of doors in cold weather, it will last for from four to six hours. It will also remain as ice for hours if placed in a vacuum bottle.

The solid material may be made into any shape required, but the mass should be at least an inch in length, on account of the rapidity with which it disappears. The duration of the application may vary from thirty seconds to two minutes. The amount of pressure depends on the extent of action desired.

The application may be so light and of so short duration that only a slight erythema, without vesiculation, is produced, and the normal condition is soon resumed.

If a somewhat firmer pressure is used for a somewhat longer time, distinct vesiculation follows, which is succeeded by the formation of a thin scar.

If the application is more vigorous and continued for a still longer time, the entire thickness of the skin may be destroyed.

The result of an ordinary application of medium intensity with moderate pressure for thirty seconds is described by Gottheil thus: "As the ice cone melts down, the skin around it swells up slightly, so that when the application is over we have a snow-white solid congealed area that is depressed below the skin and is surrounded by an erythematous, hard, raised border. The congealed area rapidly thaws out from the periphery, and in a few minutes it has disappeared. The treated area becomes red and swells up, and in half an hour or so vesiculation is distinct. The bleb is left to dry up of itself; no dressing is applied except when it is necessary to protect the lesion from injury; and in a few days it forms a dry crust."

The applications are attended by but a slight amount of pain. After the thawing there is some burning and throbbing which does not last more than two or three hours.

If the tissues are not frozen deeply, there is no necessity of applying any dressing. When, however, the parts are frozen to a considerable depth, and the patient is careless and uncleanly, so that infection occurs, the same treatment must be followed as in other infected wounds.

The treatment may be repeated if necessary after intervals of one or more weeks.

When the lip is treated a layer of dry cotton must be placed between it and the gum to protect the latter from being frozen. Similarly when treating the eyelid it must be pulled away from the eyeball and cotton used between the two to prevent undesirable extension of the freezing. Care must be taken to dry the parts and to keep the cotton dry lest such accidental moisture should become frozen. After light applications there will either be no scar tissue or it will be so superficial as to be almost invisible.

Gottheil says that when the destruction of tissue has been deeper a veil-like covering of connective tissue can with careful applications be secured with a texture which can hardly be distinguished from that of normal skin, and with such thickness and contractility as is desirable. This may be useful in covering up extensive or deep-seated lesions whose complete destruction is impracticable.

The scar when visible is smooth, superficial and soft, and cannot be duplicated in these particulars by any other method.

This refrigeration by means of the carbonic acid snow is applicable to a variety of skin diseases which have not hitherto been treated very satisfactorily by other methods. Gottheil enumerates birthmarks of every variety and all sizes, port-wine stains and angiomata, superficial and deep, pigmentary, hairy, and hypertrophic congenital deformities of all kinds, and even cavernous angiomata. In leucoplakia and precancerous keratosis it is useful, and it also removes the warty and degenerating growths which appear on the hands of those who use the Roentgen ray. Rodent ulcers and superficial epithelioma may be apparently cured. In deeper infiltrating cancer of the skin, in keloid and lupus vulgaris its value has not yet been definitely determined. Senile warts, papillomata and other small tumors are successfully destroyed by it. Gunpowder stains and other foreign substances embedded in the skin may be removed by its use. In lupus erythematosus it surpasses all other forms of treatment.

Readers of THE JOURNAL who may wish to read further on the subject will find that we have published the following articles, among others:

Tousey, Sinclair: Blotting-Paper Mold for Obtaining Crayons of Carbonic-Acid Ice, THE JOURNAL A. M. A., 1910, liv, 1519.

Stelwagon, Henry W.: A Convenient Source of Carbon Dioxid Snow, THE JOURNAL A. M. A., 1909, liii, 1205; The Use of Carbon Dioxid Snow in the Treatment of Nevi and Other Lesions of the Skin, THE JOURNAL, 1907, xlix, 1354.

Pusey, W. A.: Expensive Molds for Solidified Carbon Dioxid, THE JOURNAL A. M. A., 1909, liii, 459.

Hutchins, M. B.: Mold for Carbon Dioxid Snow, THE JOURNAL A. M. A., 1909, lii, 786.

Sutton, R. L.: Mold for Carbon Dioxid Snow, THE JOURNAL A. M. A., 1909, lii, 464.

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[*For other information see second page following reading matter*]

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MILK AND DISEASE

That food is the most important immediate means through which bacterial diseases are transmitted to man is becoming more and more evident. Air and water were at first given the chief credit, but it is now believed that they are more frequently intermediate agencies in the spread of such diseases; for bacteria do not multiply rapidly in water, on account of the lack of nourishment, and in the air desiccation and sunlight tend soon to destroy them.

While bacteria in sufficient numbers to produce disease may be ingested with water and taken in with the air, yet undoubtedly the most frequent means of transmission is through food products which have been infected by contact with the air, water, flies, inanimate objects and persons handling them.

Among food products as mediums of bacterial transmission, milk, on account of its physical state as a liquid, and its chemical advantages as a culture medium, occupies a place of first importance. The surface of solid foods under the most favorable conditions would not furnish as good a culture ground for bacteria as milk, and doubtless the digestive juices destroy large numbers of them. But in milk, bacteria multiply with amazing rapidity, the rate, of course, depending on the temperature. The products of milk—butter, cheese and margarin, both fresh and salted—may contain and preserve for considerable periods the tubercle bacillus and various pathogenic bacteria. The milk itself may become infected with the bacillus of bovine tuberculosis either through the blood or lymphatics, from local lesions in or on the udder or from the feces, which latter, in cattle with tuberculosis, have been found to contain large numbers of tubercle bacilli. The list of diseases found to be transmitted through milk is increasing, and in addition to tuberculosis and typhoid fever, we have scarlet fever, diphtheria, possibly measles, and infections such as actinomycosis, anthrax and cowpox, to say nothing of the gastro-enteric infections produced by the colon group and streptococcus infections.

A safe raw milk would be milk from healthy cows, drawn and handled in a cleanly manner by healthy attendants, transported, handled and delivered to the consumer at a temperature not exceeding 50 F., and within the least possible time. Much effective work has been carried on in many parts of the country to obtain legislation which secures a purer milk supply for cities, and the ascertained improvement in general health conditions, and especially in the death-rate of infants and children, is most gratifying, but much yet remains to be done in securing proper supervision and a better understanding on the part of the producers and consumers as to the danger from contaminated milk and the method of avoiding it.

In the production and handling of milk, however, the sources and possibilities of contamination are so numerous that even under the most rigid precautions from producer to consumer, the conditions may never attain the essentials of reasonable safety. In some recent investigations by the laboratory of the United States Public Health and Marine-Hospital Service in Washington, where much work has been done in dairy and milk sanitation, it was found that the bacterial content of samples of milk, some of which were being used in the hospitals, reached in one instance the enormous number of one hundred and eleven million to the cubic centimeter. While not all of these bacteria were pathogenic organisms, it must be admitted that the ingestion of such cultures is liable to produce disease. Therefore, in addition to the enforcement of the production of clean milk by legislation, education and inspection, the safe thing to do is to employ sterilization or pasteurization, not, as has been said, for the purpose of making bad milk good, but to render milk of doubtful wholesomeness safe. Pasteurization is a simple and measurably efficient method of accomplishing this result, and although pasteurized milk may have some disadvantages for younger children, there can be no more objection to heating milk for children on a general diet, and for adults, than to cooking many other forms of food. Pasteurization, to be effective, should be done under proper regulation and inspection, for much of what passes for commercial pasteurization is little better than no treatment at all, in that it leads to a false sense of security on the part of consumers. But until all the conditions for the production and handling of a strictly clean and sanitary milk can be complied with—an enormous task, and one requiring much time to accomplish—proper pasteurization offers without delay and with the least expense a reasonably efficient means of preventing much disease and death. Opposition to this measure by municipalities, as is seen in the case of pending legislation in Chicago, is unfortunate and not based on a correct understanding of the value and necessity of this simple method of lessening or preventing the spread of many bacterial diseases.

SMALLPOX IN THE UNITED STATES

Smallpox has been unusually prevalent in the United States during the past ten years. In the three years 1901 to 1903 the disease reached epidemic proportions; during this time four thousand six hundred and fifty-eight deaths were recorded.[1] In 1902 Massachusetts reported two thousand three hundred and fourteen cases; and in the same year New York probably had no less than nine thousand cases. Trask,[2] who has recently studied the subject, found that there were thirty-five thousand one hundred and seventy-four cases officially recorded in the United States in 1908. The actual number was undoubtedly twice this, or over seventy thousand. Last winter smallpox prevailed to a greater or less extent in almost every state in the Union. So imperfect, however, are the vital statistics in most of our states that we are in ignorance of the actual amount of smallpox occurring. We can only guess whether the disease is on the increase or on the decrease, and it is impossible to trace its spread.

The mortality of a disease like smallpox, which varies greatly in its virulence, gives no estimate of its prevalence. Thus, during the past ten years in this country the smallpox mortality rate has varied at different times and places from less than 1 per cent. to over 30 per cent. While the disease for the most part has been mild and the mortality on the whole comparatively low, yet, as has been observed in all countries during the prevalence of smallpox, or during epidemics, it may flame up in a most virulent form at any time among the unvaccinated population and result in frightful mortality and lasting and costly morbidity. This country is in no way exempt from such a possibility. It is estimated that at least one-tenth of the population of our country is not vaccinated. This means that there are some eight to nine million people who are fuel for the flames. It seems that with this large number of unprotected people smallpox will be with us for a long time. Costly epidemics should not be allowed to occur by reason of a foolish relaxation of this remarkable preventive measure, and the agitation against it by a few misguided individuals should not prevail against incontrovertible facts and figures.

When we compare the smallpox situation in our land with the superb results obtained in Germany since 1874, through compulsory vaccination and revaccination, we have reason to feel humiliated at the backwardness of our public health forces.

The prevention of smallpox constitutes a public health problem which is elemental in character. The eradication of this disease is very easy when compared with the difficulties and intricacies of such problems as the stamping out of typhoid fever, or the suppression of tuberculosis.

1. These figures are taken from the Public Health Reports of the U. S. Public Health and Marine-Hospital Service.
2. Trask, John W.: Smallpox in the United States, Am. Jour. Pub. Hyg., February, 1910, xx, 133.

ACCIDENTAL DEATH IN EPILEPSY

The sixteenth annual report of the Craig Colony for Epileptics at Sonyea, Livingston County, New York, is of more than passing interest because it calls attention to the special necessity for guarding epileptics from accidental death during their seizures. During the existence of the colony there have been 2,732 individuals under treatment with 582 deaths. In spite of this large death-rate the average age at death was over thirty years, though the occurrence of more than half the deaths between fifteen and twenty-nine and the largest number of deaths at nineteen, shows that the expectation of life is materially shortened in epilepsy. This, however, is not (as would ordinarily be thought) so largely due to the disease as it is to the number of sudden deaths from accidents of various kinds that occur during the attack. Altogether there were ninety-nine sudden deaths, more than one-sixth of all the fatal cases. Attention is called to the fact that this is the most serious danger for the epileptic and that the death-rate would be very materially reduced and the expectation of life in these patients brought up very nearly to normal if these accidents could be guarded against.

The death within the year of Miss Jean Clemens as the result of drowning in a bath-tub during an epileptic fit, which proved the last straw of misfortune for her distinguished father, is a typical instance of these cases. The Craig Colony report adds stories with regard to patients falling in their attacks with their throats across a wire or other edge, or in which the patients during the attack have rolled on their faces during the rigid phase, burying their mouths and nostrils deep in soft pillows with resulting suffocation. It is probable that many of these fatalities could be avoided if their danger were more definitely realized and more generally kept in mind. The fact that they occur at Craig Colony, in spite of the thorough appreciation of the danger, shows that not all of them can be prevented, but certainly many of them might be. Even so simple a precaution as a hair pillow instead of one of feathers would probably save a certain number of lives every year. The precaution of having some one in attendance whenever an epileptic takes a bath, especially in a large tub, would save some. This practice should be carried out even when there are long intervals between the attacks. It is troublesome, but every year some fatalities call attention to its necessity.

With the increase of intelligent care for epileptics, especially the simple life which has been proved so beneficial in the colony system, and which of course can be applied in private life where patients are able to afford it, even better than in institutions, the length of life of epileptics, their usefulness to themselves and their possibilities of happiness are much enhanced. The question, therefore, of the prevention of accidental death becomes more and more important. Not very long ago, when such patients died suddenly, there was

a feeling that after all it was best for them, since they could not look forward to any usefulness or happiness; and while this feeling did not foster actual neglect, it did somewhat lessen the vigilance exercised over the epileptic. Now all this has been changed; and so the question of accidental death in epilepsy must be before every physician's mind who has epileptic patients under his charge. The danger must be carefully impressed on those who are in close relations to patients in order to secure just as many precautions as possible against such an unfortunate occurrence.

Current Comment

PRESS COMMENTS ON THE REPORT OF THE CARNEGIE FOUNDATION

Any movement directed toward the securing of better-trained physicians will usually meet with public approval. Hence it is not surprising that almost universally the newspapers have made favorable comment on the report on medical education recently issued by the Carnegie Foundation for the Advancement of Teaching.[1] Some of the few adverse comments still show concern for the "poor boy who wants to study medicine" and for the "sparsely settled country districts," which, according to the argument, would be without physicians if fair educational standards were maintained. That even the country districts have no reason to be alarmed regarding physicians is shown by the Knoxville (Tenn.) *Sentinel*:

> The more compact settlement of the country, the spread of good roads, the telephone and the automobile will in time make it possible for the distant farmer to summon from the city, doctors learned in all the lore of the German, the Austrian, the French and of the American universities. When that time comes doctors will have to seek the best schools or risk having no patients. Even now unnecessary multiplication of medical schools should be avoided and many of those in existence might be merged with advantage to all concerned, except the doctors who get valued advertising from their position as teachers.

As to the "poor boy" argument, the Omaha *Bee* says:

> It is not narrowing the lines of opportunity to the poor but ambitious young man and woman to reduce the number of medical schools by raising the standard of efficiency. There are always ample opportunities for those who make good in medicine as elsewhere and for the physician who has the making of success the best medical school preparation is none too good.

That the profession is at present overcrowded and that higher standards of medical education and licensure are needed are recognized in the following from the El Paso (Tex.) *News:*

> It is extremely deplorable that so many doctors and lawyers are every year turned loose on the public, many of whom are utterly unfit to render the service demanded of them. The efficiency and capableness of both doctors and lawyers depend on the standard of the schools from which they graduate. And the standard of the schools, law or medical, depends in many instances on the regulations prescribed by the state laws. Where the state does not require a very high standard of efficiency and is willing to grant licenses on a mediocre basis, schools of inferior rank are bound to spring into existence and it is from such schools as these that hundreds of badly and improperly trained doctors and lawyers are annually turned out.

Regarding the statement that higher standards will tend to reduce the number of physicians to fewer but better prepared men, the New York *Times* says:

> On the face of it, a plan to restrict the physician's career may seem a wrong one to those seeking to enter it, may savor of the denial of the individual freedom to which we Americans are devoted—and addicted. But there will remain complete liberty for the more competent, and that the competent only shall be allowed to practice is one of the plain, universal, unalienable rights of the whole community.

The New York *Globe* draws a pointed comparison between the St. Louis college which brought suit for damages against the Foundation for publishing its shortcomings and the action taken by an Iowa college which did not raise a cry of "slander" but began an energetic campaign whereby sufficient funds were obtained to put it on the right basis. Regarding the continuance of low standards it also adds:

> If the doors of the state university, rich in educational opportunities, qualified to turn out real doctors, lawyers, engineers, and the like, are open to all, why should the manufacture of feebly qualified professional men or other be tolerated at all?

Although there may be statements of detail which might be criticized in the Foundation's report, generally speaking the statements made are recognized as the truth by those who are in position to judge. While the truth sometimes hurts, nevertheless any presentation of the actual facts cannot result otherwise than in good to the cause of medical education. The need of improvement has long been recognized by the majority of medical colleges, and these schools, rather than decry the Foundation's criticisms, will earnestly endeavor to correct their faults and thereby obtain real benefit from the Foundation's investigation.

SCARLET RED FOR ULCERS

In 1906 Fischer,[1] of Bonn, observed that the subcutaneous injection of scarlet red in olive oil was followed not only by an inflammatory reaction but also by an active multiplication of the epithelial cells of the skin. By this means such marked overgrowth of epithelium occurred that the microscopic picture of carcinoma was closely simulated. These experimental lesions, however, differed from true carcinoma in that they retrogressed and degenerated after the injections were stopped, and never formed metastatic growths. Because of these facts, he suggested that scarlet red might be used therapeutically. H. F. Helmholz[2] in the following year confirmed Fischer's experiment. But it was not until Schmieden's[3] research that any results from a therapeutic use of the drug were recorded. At his hands marked improvement was found to occur in the healing of old ulcers. Later reports by others were equally enthusiastic. Last year Davis[4] reported the results obtained by him in the treat-

1. This report should be read by every physician. While it is a book of 346 pages, it may be obtained by merely sending 17 cents for postage to the Carnegie Foundation, 576 Fifth Ave., New York City.

1. München. med. Wchnschr., 1906, liii, 2041.
2. Bull. Johns Hopkins Hosp., 1907, xviii, 365.
3. Centralbl. f. Chir., 1908, xxxv, 153.
4. Bull. Johns Hopkins Hosp., xx, 176.

ment of about sixty cases of various sorts of ulcers. His conclusions are that in general the time of healing and epitheliation is greatly shortened by the use of scarlet red and that "the stability, thickness and normal appearance of the healing" are noteworthy.

UNTRUE AND MISLEADING ADVERTISEMENTS

The State of New York has a law that prohibits the publishing of "untrue and misleading advertisements." Few people are aware of its existence, but the other day Assistant District Attorney Moscowitz of New York City resurrected it to good effect. A dealer advertised that he had purchased several thousand raincoats at a "customs seizure" and was going to sell them at marvelously low prices. The deputy collector of the port swore that no such seizure had been made. Hence the arrest and arraignment of the dealer. Now that the ball has been set rolling, the possibilities of this resuscitated law seem great. For instance, the Dr. A. C. Sanden Company advertises in the New York papers the wonderful virtues of its "health belt." A man wearing this device "cannot grow old; he must be young forever." Would this come in the "untrue and misleading" class? In another New York paper of the same date we are told of the "miraculous cures of cataract," in fact, of "all eye diseases," which the "Magic Eye Lotion" brings about! Can this be "untrue and misleading?" And, in another line of activity, we are told through a New York paper that the "bland qualities" of "White Rock" "make high-balls harmless." Either this is "untrue and misleading" or physiologic chemistry needs revising. These are but a few to start with, but the field is broad and there is no lack of material to work on.

AUTOMOBILES AND THE BIRTH-RATE

Mr. E. T. Fairchild, who has taken the school census for the present year in Kansas, says that since the appearance of the automobile in rural circles the number of births has decreased. We doubt whether this reasoning will hold, although we do not question the coincidence. By the same token, droughts, grasshoppers and mortgages must have had a stimulating effect on the birth-rate in the prairie state. The decreasing birth-rate and the increase of the farmer's bank account are alike caused by the growing wealth of the farmer and the changed standards of living as a result. The automobile should not be held responsible for the relative absence of babies, although it has probably served as a substitute in many cases.

ALLOPATHY A MEANINGLESS TERM

On another page a correspondent protests against a statement regarding the use of the term "allopathy" contained in the Chapter on Sects in the Flexner Report, an abstract of which we published two weeks ago. Mr. Flexner's article was reprinted, not only for its able discussion of the problem of medical sectarianism, but quite as much because it presented the subject from the standpoint of the layman. It does not necessarily follow that THE JOURNAL endorses all that was contained in the chapter. Webster defines "allopathy" as "that system of medical practice which aims to combat disease by the use of remedies which produce effects different from those produced by the special disease treated—a term invented by Hahnemann to distinguish the ordinary practice as opposed to homeopathy." If this definition means what it says, then there are very few allopaths, for we doubt if any physician administers or has administered remedies in accordance with any such theory. The term is a meaningless one and is disclaimed by all physicians, not only because it is meaningless but because the true scientific physician belongs to no school and to no sect; he bases his methods of diagnosis and his treatment on no dogma and on no ism. He is simply a physician, and he neither needs nor desires any adjective to modify the term. On the other hand, the word "regular" is equally objectionable to the sectarians, and naturally so since its use, by inference, classes them as "irregulars." Whatever sectarian distinctions exist, however, have been created by the sectarians themselves, and, with the exception of those who proclaim themselves the followers of some special creed or prophet, the term "physician" is amply descriptive and distinctive.

Medical News

COLORADO

Personal.—Dr. Alexius M. Forster, Baltimore, has purchased Cragmoor Sanitarium, near Colorado Springs, for $50,000. A large sum will be spent in renovating and improving the place. ——Dr. Joseph E. Peairs, city health commissioner of Pueblo, has resigned to go east for postgraduate work.——Dr. Laura L. Liebhardt, Denver, has gone to Europe for a year's study. ——Dr. Charles B. James, county physician at Denver, has been succeeded by Dr. Allen, South Denver.——Dr. Marion S. Middlekamp has been appointed county physician at Pueblo, vice Dr. William H. Campbell, resigned, and Dr. Elmer A. Elder has been appointed health commissioner of the city of Pueblo.

ILLINOIS

Hospital for Ottawa.—By the will of the late S. E. King, Ottawa, $40,000 has been left for a hospital in Ottawa.

Personal.—Dr. Robert S. McCaughey, Hoopeston, is in Germany.——Dr. John W. Huston, Virginia, has gone to Asheville on account of his health.

Chicago

Officers of Surgical Society.—At the last meeting of the Chicago Surgical Society the following officers were elected: President, Dr. Jacob Frank; vice-president, Dr. Charles Davison; secretary, Dr. Frederic A. Besley, and treasurer, Dr. Dean Lewis.

Fresh Air Schools Open.—Fresh air schools for weak or tuberculous children were opened in the north, west and south sides of Chicago July 12 by the board of education in cooperation with philanthropic agencies. No definite course will be given, but instruction will be given the children in hygiene and dietetics. Four meals a day will be furnished the children by the Chicago Permanent School Extension Committee of the Woman's Club, and a physician will be provided by the Tuberculosis Institute.

For Better Health.—The campaign for better health conditions in Chicago includes a permanent milk commission, which will have an appropriation to carry on its investigations and experiments; milk ordinances are to be strengthened, and the transportation of milk is to be looked after more carefully; the making of ice cream is to be supervised; further attention is to be given to the dumping of refuse into the lake; dry sweeping in the down-town section will be reduced to the minimum, and the ten-hour law for women, recently upheld by the supreme court, will be vigorously enforced.

Campaign Against Typhoid.—Chicago, the second largest city in the United States, has the lowest death rate from typhoid fever of any of the large cities in this country, the record being 12 deaths for every 100,000 of population. In order to reduce this figure, a systematic study of typhoid

fever in Chicago will be made this season. Dr. Leslie L. Lumsden, passed assistant surgeon U. S. P. H. and M.-H. Service, has been detailed to investigate typhoid in Chicago, in cooperation with the Chicago health authorities. The plan is to make an extensive study of typhoid in as many parts of Chicago as possible. In this work Dr. Lumsden will have the help not only of the health department but of the Visiting Nurse Association and other organizations. The medical inspectors and laboratory of the health department will report typhoid directly to Dr. Lumsden. The cooperation of physicians is also requested. It is desired that physicians shall report the termination of all cases of typhoid, giving date of recovery, in order that examination may be made to determine if the patient is safe. Nurses and inspectors will visit each case to inquire into the measures employed for the safeguarding of the community. This is only for supervision, and will leave to the physician in attendance every detail of the treatment. Blood examinations and blood cultures will be made in the laboratory, in which work it will be assisted by Prof. Jordan, of the University of Chicago. Dr. Lumsden has had wide experience in the investigation of typhoid outbreaks in numerous points throughout the country, and it is hoped to make the record of Chicago equal to that of European cities like Berlin, Vienna and Rotterdam, where the average is between three and six deaths for each 100,000.

INDIANA

Tuberculosis Colony Reopened.—The Indianapolis city council has voted a fund for the maintenance of the City Tuberculosis Colony which was closed recently because of lack of funds.

Children's Dispensary.—The Children's Medical Dispensary was opened on July 5, at 1325 West Division Street, Indianapolis. The work of the dispensary is to be largely educational. Milk will be supplied for babies and advice given to mothers in regard to infant feeding.

Meeting of Alumni Association.—At the meeting of the Alumni Association of the Indiana University School of Medicine, Dr. Alfred Stengel, Philadelphia, was the guest of honor. Dr. Norman E. Jobes, Indianapolis, was elected president, and Dr. Benjamin P. Weaver, Fort Wayne, secretary.

District Meeting.—At the meeting of the Third Councilor District Medical Association, held at New Albany, the following officers were elected: President, Dr. James B. Duncan, Bedford; vice-president, Dr. James P. Salb, Jasper, and secretary, Dr. Isaac N. Ruddell, Jeffersonville. Dr. Joseph M. Matthews, Louisville, was the chief speaker of the meeting.

Personal.—Dr. William Palm, Harmony, has been appointed physician of the Orphans' Home at Knightsville.——Dr. Edward J. Dubois, Indianapolis, has been appointed bacteriologist and pathologist of the city laboratory.——Dr. Orange G. Pfaff, Indianapolis, was seriously injured in an automobile accident at Little Falls, N. Y.——Dr. William A. Spurgeon, Muncie, and Dr. Moses S. Canfield, Frankfort, have been reappointed by the governor on the State Board of Medical Registration and Examination.——Dr. Frank B. Wynn, Indianapolis, has been appointed chairman of the Civil Improvement Commission.

KENTUCKY

Physicians Graduate.—At the commencement exercises of the Medical Department of the University of Louisville, June 30, 202 physicians were given diplomas.

Personal.—Dr. Louis H. Mulligan, for a number of years superintendent of the Central Kentucky Asylum for the Insane, Lakeland, has resigned. Dr. William E. Gardner, who was first assistant under Dr. Mulligan, succeeds him.——Dr. Lewis Ryans, Louisville, has been appointed United States marshal for the district of Kentucky.——Dr. Joseph L. Barr, physician at the Frankfort penitentiary, has resigned and has been succeeded by Dr. Elijah H. Maggard, Ashland.——Dr. John A. Watkins, physician at the Eddyville penitentiary, has become assistant physician at the Hopkinsville asylum. He was succeeded by Dr. Richard H. Moss, Hodgenville.——Dr. Edward R. Pennington, Owensboro, has been appointed coroner of Daviess County.

LOUISIANA

Personal.—Dr. Marion S. Souchon, demonstrator in anatomy at Tulane University, has resigned, as have also Dr. J. Frank Points, assistant demonstrator in anatomy, and Dr. Israel S. Kleiner, instructor in chemistry.——Dr. and Mrs. Otto Jackson, New Orleans, are in Europe.

Panama Exposition.—At the meeting of the State Medical Society in May a resolution was adopted approving of the plan of holding a world's Panama exposition at New Orleans in 1915, and expressing the belief that a proper impetus would be given thereby to matters of sanitation.

For Fraudulent Use of the Mails.—Dr. Roland Register, Dr. Alexander S. Dyar and Dr. W. H. Hale, New Orleans, have been found guilty of using the mails to defraud, in sending out circulars making false claims and guarantees of cures, and have been sentenced to the federal prison at Atlanta and given large fines.

Tulane Medical School.—The Medical School of Tulane University has inaugurated a summer medical school. It opened in May with over twenty matriculates. Harvard and the University of Michigan are the only other big colleges in the country that have summer schools of medicine. A considerable part of the work of the school relates to the subjects and courses covered in the regular curriculum, and is intended for the purpose of review. There is also offered advanced work, including research work for students and physicians. The course will be extended and lengthened hereafter. The medical alumni of Tulane residing in Arkansas met May 4 and organized a state association, and on May 11 they organized a similar association in Texas. During the life of the medical department, more than 4,600 physicians have been turned out by Tulane.——The alumni of Tulane held its annual reunion in St. Louis during the meeting of the American Medical Association, and a banquet was held at the Hotel Jefferson. Dr. Robert B. Bean, recently connected with the School of Medicine of Manila, P. I., has been elected associate professor of anatomy in place of Dr. H. W. Stiles, who has accepted a professorship in anatomy in Syracuse University.

MARYLAND

Fahrney Reunion.—The Fahrney family annual reunion of several hundred descendants of Dr. Peter Fahrney, a picturesque character of Washington County, Maryland, will be held at Mapleville, Md., July 30. The membership extends over several states.

Baltimore

Warren Prize Awarded.—The Warren triennial prize for 1910, consisting of $500, has been awarded to Dr. George H. Whipple, Johns Hopkins Hospital, for his essay entitled "The Pathogenesis of Icterus."

To Assist Commission.—Mr. Alex. A. Wilson, head of the Phipps Institute, Philadelphia, has been appointed by the municipal tuberculosis commission to assist in its investigation. He will spend three days each week here until his report is completed. Mr. Wilson has done important work in Boston and Chicago.

Floating Hospital Advocated.—Dr. R. Martin Burns advocates the founding of a floating hospital for babies. He urges the chartering of two steamers accommodating 600 children, with operating room on each, under a physician and surgeon, and a staff of young physicians and nurses. They should be anchored down the bay and should accommodate children, both white and colored, up to 5 years of age.

Library Bequest to Dr. Welch.—Major Richard M. Venable, who died June 10, bequeathed his library to Dr. William H. Welch. He was a great reader and in his will he says: "In this library will be found quite a collection of books on religious and theologic subjects. These and the notes on them by me represent a protracted struggle for the light." Dr. Welch is also left $100 to purchase some memento of the deceased.

New Hospitals.—Building operations on the Phipps psychiatric clinic at Johns Hopkins Hospital begin this week. Mr. Phipps gave $1,000,000 and the building will cost $750,000 or more. It will be 175 by 110 feet and will require about eighteen months to complete. The Pittsburg Building Company have the contract. It will be a five-story brick structure. ——The Harriet Lane Johnson Hospital for Children is approaching completion.

Medical School Opened to Women.—The faculty of the Maryland Medical College announce that with the coming session the doors of that institution will be opened to women. The instruction for the first and second year students will hereafter be given in the evening. At a meeting of the faculty and alumni, July 12, a "clinical society" was organized, which will meet on the second Tuesday of each month. The following are the officers: President, Dr. A. E. Grempler; vice-president, Dr. J. G. Selby; secretary-treasurer, Dr. James A. Guff.

Personal.—Dr. J. F. Hawkins was operated on for appendicitis at University Hospital July 13.——Dr. John M. Bergland has gone to Biddeford Pool, Me., as resident physician.——Dr. John R. Winslow left July 16 for a summer in Germany and Holland.——Dr. Andrew H. Whitridge sailed for Europe July 16.——Dr. John T. King sailed for Naples July 16.——Dr. G. Halsted Boyland, who has lived in Europe several years, is visiting Baltimore.——Dr. Roland B. Whitridge is traveling in Spain.——Dr. R. Y. McLeod, a confederate veteran, of Sumter, S. C., is at the Johns Hopkins Hospital for treatment of wounds received during the civil war.——Dr. William J. Messick was elected treasurer of the Delaware Society of Maryland.

Standards for Ice Cream.—Dr. Charles Caspari, Jr., pure food and drug commissioner, is the official judge of ice cream in Maryland. He has divided it into three kinds—plain, fruit and nut. He demands that there shall be 4 per cent. of butter fat in the first two and 6 per cent. in the last. In none must there be more than 1 per cent. of gelatin, which is used by manufacturers to give it firmness. He is providing labels which manufacturers are to put on the outside of the containing vessels. These give the exact amount of the substances used and when the article was packed. A corps of assistants will see that the law is enforced. Violations are punishable with a fine of $500 or imprisonment for a year, or both.

MICHIGAN

New Home of Wayne County Association.—The property at 33 High Street, East, Detroit, has been purchased by the Wayne County Medical Association. The building will be remodeled for a meeting-place and club house. It will be fitted up with a large auditorium, a library and a clinical laboratory.

Antituberculosis Dispensary.—The offices and headquarters of the Houghton County Antituberculosis Society have been moved to Calumet. One of the first acts of the society will be to open a free dispensary in connection with the new headquarters, in charge of Miss Ehlert, the society's visiting nurse.

Personal.—Dr. Ellsworth Orton, health officer of Pontiac, has resigned.——Drs. William P. Melody and D. E. Binning have been appointed city physicians of Detroit by the poor commission.——Dr. Arthur M. Hume, Owosso, has been appointed chief surgeon of the Ann Arbor Railroad to succeed Dr. Louis L. Syman of Toledo, who resigned.——Dr. Jacob W. Rothacker, a former city physician of Detroit, has been appointed coroner to succeed the late Dr. John F. Bennett.——Dr. M. Maywood Sears, Kalamazoo, was seriously injured by jumping from his automobile to avoid a collision with a train.——Dr. Beverly D. Harison, Detroit, has received the degree of A.M. from the University of Michigan.——Dr. Freeman A. Jones, Lansing, has been reappointed city physician.

College Commencement.—At the forty-second annual commencement of the Detroit College of Medicine, thirty-seven physicians were graduated. Chase S. Osborn, Sault Ste. Marie, made the principal address to the graduating class. He suggested that the practice of medicine, especially scientific hygiene and sanitation, should be placed on a public basis. Local, state and government health departments are doing much but not enough. The public must be awakened along every line. The annual banquet was held at the Hotel Cadillac. Dr. John N. Bell acted as toastmaster.——At the annual meeting of the alumni, 330 members registered. Dr. Gilbert J. Anderson, Detroit, was elected president; Dr. William T. Henderson, Mobile, Ala., vice-president; Dr. Frederick G. Buesser, Detroit, secretary (reelected), and Dr. J. H. Dempster, historian of the alumni association.——According to the president, Dr. Richard E. Mercer, there is no possibility of a merger of the Detroit College of Medicine with the University of Michigan, as has been rumored.

MINNESOTA

Personal.—Dr. Herbert G. Lampson, Minneapolis, has been appointed to the faculty of the Medical Department of the University of Minnesota.——Drs. Joseph B. Budd, Two Harbors, and Charles P. Robbins, Winona, have gone to Europe, the latter for a year's study.

Society Meetings.—The forty-second annual meeting of Wabasha County Medical Society was held at Millville July 7. The following officers were elected: President, Dr. Ernest A. French, Plainview; vice-president, Dr. M. J. Shaughnessy, Wabasha; secretary-treasurer, Dr. William F. Wilson, Lake City; delegate, Dr. William J. Cochrane, Lake City; alternate, Dr. Emery H. Bayley, and censor, Dr. Jesse A. Slocumb, Plainview.——The Southern Minnesota Medical Association will meet in Winona August 4. An interesting program has been prepared.

Changes in Faculty.—The following changes have been announced in the University of Minnesota College of Medicine and Surgery: Dr. Frederick A. Dunsmoor, formerly professor of clinical and operative surgery, has been made professor of clinical surgery, and Dr. Herman A. Bowman, clinical instructor in surgery. The following clinical instructors have been made assistant professors: Dr. Frank E. Burch, in ophthalmology and otology; Dr. Elmer H. Parker, in rhinology and laryngology; Dr. J. H. Hewitt, demonstrator in pathology and bacteriology, and Dr. Olaf A. Olson, clinical instructor in surgery.

MISSOURI

Personal.—Dr. Isaac E. Hill has been appointed pension examining surgeon at Hannibal to succeed Dr. Richard Schmidt, resigned.——Dr. Milton P. Shy, Knobnoster, has been appointed surgeon of the M., K. & T. Railroad, vice Dr. McNeil, resigned on account of ill health.

Milk Commission Named.—Dr. Charles R. Woodson, president of the St. Joseph-Buchanan-Andrew County Medical Society, has appointed a milk commission for St. Joseph, consisting of Drs. John M. Bell, Oliver C. Gebhart, Emmett S. Ballard and Clarence A. Good. The commission will inspect and examine milk furnished for sale in St. Joseph, and pay particular attention to methods employed at dairies and endeavor to improve the sanitary conditions which surround the preparation of milk for the market. The commission will work in connection with the medical society for this cause.

St. Louis

Traveling Tuberculosis Exhibit.—The Missouri Association for the Relief and Control of Tuberculosis has arranged for a traveling tuberculosis exhibit occupying two cars. The trip began July 20, and will be in charge of Dr. James Stewart, medical adviser of the board of education, who will deliver lectures in all towns visited, assisted by local physicians in each place. The whole trip will consume nine months and practically every town in the state will be visited.

Staff Appointments Announced.—St. Louis University has announced the following staff appointments at Alexian Brothers' Hospital for the ensuing year: Dr. Charles H. Neilson, visiting physician, chief of staff; Dr. Ralph L. Thompson, pathologist; Dr. William W. Graves, neurologist; Dr. Carroll Smith, surgeon; Dr. Harvey S. McKay, surgeon; Dr. John W. Marchildon, physician genito-urinary department; Dr. Clarence Loeb, oculist; Dr. William M. C. Bryan, laryngologist.

Personal.—Dr. Michel Hanna has received appointment as physician to the government board of health at Zagazig, Egypt. He is a graduate of St. Louis University.——Dr. Floyd Stewart has been reappointed surgeon-general of the United Sons of Confederate Veterans.——Dr. Guthrie McConnell has been offered the position of assistant professor of pathology in the University of California, Berkeley.——Dr. H. O'Hara May, of the medical corps of the British government, of the Gold Coast, West Africa, who is making a trip through the United States, is spending some time in St. Louis.

New Medical Instructors.—Dr. Frederick A. Baldwin, Dallas, Texas, who was assistant bacteriologist and pathologist of St. Louis during the World's Fair, has accepted the chair of pathology and clinical medicine at the American Medical College.——The trustees elected Dr. Thomas G. Atkinson, until recently professor of nervous diseases in the Chicago College of Medicine and Surgery, to the chair of neurology, and George M. Heath, instructor in pharmacy and chemistry in the University of Michigan, has been elected professor of physics and physiologic chemistry. The new instructors will assume their duties September 6.

NEW JERSEY

State Society Meeting.—At the meeting of the State Medical Society at the Chalfonte, Atlantic City, June 30, the following officers were elected: President, Thomas H. Mackenzie, Trenton; vice-presidents, Daniel Strock, Camden; Norton L. Wilson, Elizabeth; Enoch Hollingshead, Pemberton, corresponding secretary, Harry A. Stout, Wenonah; recording secretary, William J. Chandler, South Orange; treasurer, Archibald Mercer, Newark. A report of the proceedings will appear in THE JOURNAL.

State Pediatric Society.—The first annual meeting of this society was held in the Hotel Chalfonte, Atlantic City, June 27, 1910, the president, Dr. H. L. Coit, presiding. The attendance was large. The officers were: President, Dr. Henry

L. Coit, Newark; vice-president, Dr. Alexander McAlister, Camden; treasurer, Dr. B. Van D. Hedges, Plainfield; secretary, Dr. M. J. Synnott, Montclair; council, Drs. J. Finley Bell, Englewood; Thomas N. Gray, East Orange; Burdette P. Craig, Jersey City; Emery Marvel, Atlantic City, and F. H. Glazebrook, Morristown. After the evening session a reception was held by the president and Mrs. Coit for the members, their families and friends.

State Board Meeting.—The State Board of Medical Examiners met at Trenton, July 7, and elected the following officers for the ensuing year: Dr. William K. Watson, Jersey City, president; Dr. Horace G. Norton, Trenton, secretary, and Dr. Armin Vebelacker, Morristown, treasurer. The committee on legislation comprises Dr. Richard Barrington, Mount Holly, chairman; Dr. Charles E. Groves, Orange, and Dr. William Borden, Passaic. The board discussed the action of the New York board which had cancelled reciprocity relations with New Jersey because the latter had not adhered to the desired requirements as to preliminary education. (See New York news, this issue.) The New York board has been asked to reconsider its action. Unless this is done New Jersey threatens to refuse indorsement to New York applicants.

NEW YORK

Personal.—Dr. William A. Howe, of Phelps, has been appointed deputy commissioner of health, a position created by the last legislature.——Dr. and Mrs. Alfred W. Hoyt, of New Rochelle, have gone to Europe.

Scarlet Fever Epidemic.—It has become necessary to close the Pelham summer home which has been conducted for the benefit of poor children of New York City, because of an epidemic of scarlet fever in that institution.

Speaks for National Health Department.—Dr. Harvey W. Wiley delivered an address to several thousand persons at Chautauqua, July 15, where he spoke enthusiastically for a national health department and pointed out what it would do for the safeguarding of the public health.

Inoculations Against Typhoid.—The officers and men stationed at Fort Wadsworth, New York harbor, have been inoculated against typhoid. This is the first of a series of experiments in the United States army similar to those which proved eminently successful among the British troops during the Boer war.

Laboratory Course for Health Officers.—During the month of July the State Hygienic Laboratory has conducted two courses for the benefit of the health officers of the state. July 11 to 14 the course was on general and clinical microbiology, July 13 to 16 on sanitary water analysis. Each person was provided with a working table, microscope, material and all accessories. The course was practical and largely attended.

Reciprocal Relations Discontinued.—It is reported that reciprocal relations with New Jersey have been discontinued by the New York board of regents. This was said to be due to a recent decision by the governor and the attorney-general of New Jersey that a student did not need to have a high school training as a prerequisite to the study of medicine, but that he might be permitted to complete such secondary education up to within ten days of his examination for license. New York, on the other hand, requires that all conditions in high school work must be made up before the beginning of the sophomore year in medicine.

New Hospitals and Dispensaries.—The State Board of Charities at its quarterly meeting refused to issue a license for the conduct of a dispensary in New York City by the New York Osteopathic Clinic of Manhattan.——Applications for approval of certificates of incorporation were denied the Emmanuel Hospital of Brooklyn and the Zion Hospital and Dispensary.——Plans were approved for the proposed tuberculosis hospital to be erected in connection with the Cattaraugus Almshouse at Machias, and also plans for the erection of new buildings on the cottage plan by the Hebrew Sheltering Guardian Society of New York, at Pleasantville, and for alterations of the buildings of the German Hospital and Dispensary of Brooklyn.

Vital Statistics in May—There were in this state 16,760 births and 11,901 deaths for the month of May, of which 888 were from epidemic diseases, 1,234 from consumption, 213 from other forms of tuberculosis, 1,829 from other diseases of the respiratory system, 400 from diarrheal diseases and 739 from accidents and violence. In the five months of this year there have been 267 cases of smallpox, against 285 for the same months of last year. The urban rate of mortality for the month is 28 per 100,000 of population and the rural 11, the average urban mortality for this month being 21.4 and the average rural being 8.4. Thus far this year there have been 325 more deaths from scarlet fever and 100 more from diphtheria than there were during the same period of 1909. It was interesting to note that influenza was especially a rural disease; the actual number of reported deaths in the cities was 529 to 650 in the rural districts for six months from December 1 to June 1. This disease reached its highest mortality in March, when there were 1,400 deaths from this cause. At this same time the highest point of mortality was reached by other pulmonary diseases and by diseases of the nervous system, the digestive system and Bright's disease, suggesting the inference that influenza was a factor in increasing their fatality.

New York City

Crocker Fund in Hand.—By the sale of the estate of the late George Crocker, Columbia University has come into possession of a fund of $1,500,000 provided for in the will of the late millionaire to fight cancer, mention of which has been made before in THE JOURNAL.

Personal.—Dr. Walter Guernsey Frey has been appointed a medical officer of the fire department.——Dr. and Mrs. A. M. Shrady and Dr. Walter Lester Carr have sailed for Europe.——Thomas Andrew Storey, M.D., Ph.D., hitherto associate professor and director of the department of physical instruction and training in the College of the City of New York, has been made a full professor and the departmental name changed to physical instruction and hygiene.

Society Organized.—The Society for Clinical Serology was organized at the Mt. Sinai Hospital in New York City on May 9, 1910, when the following officers were elected: Dr. David J. Kaliski, president; Dr. Howard Fox, vice-president; Dr. Walter J. Heimann, treasurer; Dr. Mortimer Warren, secretary, 39 East Twenty-Seventh Street. The object of the society is the cultivation of serological methods as applied to clinical medicine. Meetings will be held on the second Friday in October, December, February and April. The society is making an effort to effect a standardization of material used in the Wassermann reaction in order to bring about uniformity of results.

Hoffman Island Hospital.—The new hospital on Hoffman Island for the accommodation of contagious diseases coming into the port of New York was opened for inspection July 3. The hospital can accommodate 250 patients and can also provide for relatives and friends of the patients. In connection with the hospital there will be a school for instruction in communicable diseases. Two health officers from different parts of the state will be assigned to the hospital every four days for the study of the latest and best methods of treating and combating contagious diseases. A permanent group of state officers will be maintained to carry on the work of instruction, and also a training school for nurses.

Hospital Bequests.—The will of Henry Dexter, president of the American News Company, leaves over $1,000,000 to charity; among these bequests the Society for the Suppression of Vice receives $30,000; the Association for Improving the Condition of the Poor, $20,000; St. John's Guild, $10,000; Charity Organization Society, $10,000; St. Luke's Hospital, $100.——The will of Mrs. Margaret A. Bromley leaves $3,000 to the Mothers' and Babies' Hospital.——The will of Mrs. Margaret M. Coakley leaves $500 to St. Joseph's Hospital for Consumptives and a like amount to the Cancer Hospital at Hawthorne.——The annual patriotic celebration of the French Benevolent Society netted $2,000 for the French Hospital.

Infant Mortality in New York and Brooklyn.—For several years physicians and social workers have been at a loss to account for the fact that the infant mortality of Brooklyn has been considerably higher than that of New York. Dr. Lederle has appointed a special committee to investigate this matter. Brooklyn physicians were of the opinion that the widespread use of condensed milk might account to some extent for the prevalence of intestinal troubles. There is a much better observance of sanitary laws in the crowded sections of Manhattan than in those of Brooklyn. The number of children in Manhattan suffering from diarrheal diseases has been much smaller during the recent hot spells than in similar weather in former years. This is attributed to the more general instruction of tenement mothers.

PENNSYLVANIA

Epidemic Ended.—The Columbia Board of Health announced that the scarlet fever epidemic is at an end and that Columbia is almost entirely free from communicable diseases.

Infantile Palsy at Bethlehem.—State Health Commissioner Samuel G. Dixon has ordered an investigation into the reported existence of infantile palsy in Bethlehem and vicinity. Two well defined cases are understood to have appeared in that portion of the Lehigh Valley.

School Inspection.—Through the efforts of Dr. Henry H. Herbst, the city of Allentown has made an appropriation for medical inspection of school children. A superficial examination of the 18,000 pupils shows that 10 per cent. are suffering from defective vision; 6 per cent. from defective hearing; 19 per cent. from defective teeth; 10 per cent. from defective breathing, and over 6,000 pupils are above normal age for their grade.

Health Department and Rural Physician.—Dr. Samuel G. Dixon addressed the McKeesport Academy of Medicine July 15 and described how Pennsylvania, through its department of health, is cooperating with the family physician, especially the rural practitioner, who is cut off from urban advantages. "Pennsylvania has come to the aid of the medical profession in its daily work," said Dr. Dixon, "to a greater degree than any other state in the Union, and possibly indeed, than any country in the world."

Personal.—Dr. C. F. Bingaman has returned to Pittsburg after spending several months in touring around the world. ——Dr. J. King Love, Easton, is in Europe.——Drs. L. C. Mundy, Wilkes-Barre; H. H. Walker, Linesville, and Gibbs Biscoe, of Arkansas, have completed their service in the Altoona Hospital, and their places will be supplied by Drs. H. L. McCarthy, Altoona; Logan E. Hull, New Florence, and H. F. Schrader, St. Paul, Minn.——Dr. Charles H. Schlesman, Allentown, has gone to Europe for study.

Resolutions Supporting Dr. Guth.—At the regular meeting of the Warren County Medical Society, July 12, resolutions were adopted expressing the surprise and grief of the members at the dismissal of Dr. Morris S. Guth as superintendent of the state insane hospital at Warren. The resolutions state that Dr. Guth was connected with the institution since its foundation, and because of his high character, his great ability as a physician and alienist and because of his efficiency as a manager it was felt that the trustees, in taking this action, had committed a grave error, and that it would require reasons of the strongest kind to convince the society that the change was either necessary or desirable.

Typhoid Epidemic at South Fork.—Until a few days ago there were thirty-three well developed cases of enteric fever reported within a brief period of time at South Fork, near Johnstown. Two sanitary engineers representing the state health department are on the scene and will remain there until the situation is under control. The two large reservoirs were treated with 500 pounds of copperas with the view of destroying the causative pathogenic bacteria. The disinfectant was placed in burlap sacks and trailed behind boats paddled over the surface of the water. The copperas is proportioned 1 to 1,000,000 parts of water. No deaths have as yet occurred and the authorities hope the epidemic can be checked without any loss of life.

Philadelphia

Sane Fourth Reduces Tetanus Mortality.—There has been but one death from tetanus in this city as the result of the Fourth of July celebrations just past. This excellent record is partly the result of the observance of the use in all hospitals of antitetanic serum and the decreased use of explosives and firearms.

Phipps Institute Clinical Staff.—The directors elected the following physicians as members: Drs. H. R. M. Landis, J. D. Blackwood, Jr., T. W. Busch, F. A. Craig, J. M. Cruice, W. T. Cummens, G. Fetterolf, I. Kaufman, C. M. Montgomery, H. J. Off, J. T. Ullom, M. Jacobs and W. Turnbull. These men will have charge of the patients in the wards and of the treatment of the dispensary patients.

New Eye Hospital Opens.—A free non-sectarian hospital and dispensary for the treatment of eye diseases in general, and trachoma in particular, was opened July 18 at 228 Pine Street. It will be known as the Trachoma Institute of Philadelphia. The institute will endeavor to arrange with the immigration authorities of this city for the treatment of immigrants afflicted with trachoma, where there is a prospect of curing them, so as to save them from being deported on that account.

Personals.—Dr. W. W. Hawke, chief resident physician to the insane department of the Philadelphia General Hospital, resigned his position to assume duties as superintendent of the state hospital for the insane at Warren, Pa. Dr. J. Allen Jackson, of the Central Indiana Hospital for the Insane at Indianapolis, was appointed to succeed Dr. Hawke.——Drs. Ernest La Place, John A. Boger and George C. Stout sailed for Europe.——Dr. James Hendrie Lloyd has been elected visiting neurologist to the Methodist Episcopal Hospital.

Proposed Improvements to City Hospital.—Dr. Joseph S. Neff, director of the department of health and charities, in his annual budget of expenditures for the year 1911 asked for an appropriation of $5,000,000. Among the improvements that he recommends are the development of Byberry as the home for the city's insane wards; $300,000 for improvements at the Philadelphia General Hospital; $100,000 for the construction of an annex for the feeble minded at Byberry; $500,000 to complete the hospital for contagious diseases. If the plan for the improvements is approved by councils Philadelphia then will have the most complete institutions of their kind in this country.

Charitable Bequests.—The Supreme Court of Pennsylvania, in a decision rendered recently, sustained the validity of the will of the late Anna T. Jeanes, and the result is that the following bequests are made possible: The incorporated trustees of the Philadelphia Yearly Meeting of Friends, for the establishment and assistance of hospitals and infirmaries, $250,000; joint committee of the Quarterly Meeting House for Aged and Infirm Friends, for the establishment of a hospital for cancerous and nervous ailments, $200,000; the Women's Hospital, $64,000; the West Philadelphia Hospital for Women, $10,000; Hahnemann Hospital, $10,000; the Philadelphia Home for Incurables, $10,000; the Women's Homeopathic Hospital, $10,000; the Pennsylvania Hospital, $10,000; the Red Banks Sanitarium, $5,000.

GENERAL NEWS

Tri-State Meeting.—The Tri-State Medical Association, comprising Indiana, Ohio and Michigan, under the presidency of Dr. Charles B. G. De Nancrede, Ann Arbor, met at Elkhart, Ind., July 12. Dr. Victor C. Vaughan, Ann Arbor, delivered the principal address, on "Tuberculosis."

American Public Health Association to Meet.—The American Public Health Association will hold its thirty-eighth annual meeting in Milwaukee, Wis., September 5 to 9. The association will discuss methods for the correlation of the work of various public health organizations which have been invited, and for cooperation with a view to increasing efficiency and economy. Sanitary engineering will occupy a conspicuous place on the program. Information concerning the meeting can be obtained by addressing Dr. William C. Woodward, secretary, Washington, D. C.

Tracing Tuberculosis in Cattle.—In 1908 government veterinary inspectors found 706,046 tuberculous hogs, an average of 2,000 per day, among hogs that went to packing houses having government inspection. These hogs probably became infected from tuberculous cattle. As a method of tracing to the source this tuberculosis, Burton R. Rogers proposes a plan of requiring all cattle shipped to the markets where government inspection prevails be tagged with a metal tag in the ear giving a number that will indicate what particular farm the cattle came from. In that way the source of the tuberculosis could be traced and tests made and the sources of infection thus eradicated.

Medical Exposition for Centennial.—The department of public instruction of Mexico in connection with the celebration of its centennial has named a committee consisting of Drs. Fernando Zarraga, Regino Gonzales and Alfonso Pruneda, to prepare a medical exposition to be held in the medical school during September, the purpose being to bring together in one place modern surgical instruments and appliances for the benefit of visiting physicians. The committee have sent out circulars soliciting exhibits. The whole collection will be photographed when placed and pictures will be presented to all who apply for them during the centennial month. It is hoped to make the exhibition the nucleus for a permanent national museum.

Medical Library Association.—The thirteenth annual meeting of the Medical Library Association was held in St. Louis June 6. The secretary's recommendation was approved, that the constitution, by-laws and a list of members be printed. The treasurer's report showed a balance from the previous year of $725.81; receipts for the year were $410; total receipts, $1,135.81; expenditures for the year, $1,093.48, leaving a balance on hand of $43.33. The report of the manager of the exchange showed that during the year the material belonging to the exchange moved from Brooklyn to Baltimore, and arranged and listed for distribution consisted of unbound numbers, reprints, etc., 7,707, and bound volumes, 11,919.

The following officers were elected: President, Dr. John H. Musser, Philadelphia; vice-president, Mr. C. Perry Fisher, Philadelphia; secretary, Miss M. R. Charlton, Montreal, Que.; treasurer, Dr. John Ruhrah, Baltimore; executive committee, Drs. John W. Farlow, Boston; Lewis H. Taylor, Wilkes-Barre, Pa., and William Browning, Brooklyn; finance committee, Drs. Frank J. Lutz, St. Louis; Carl E. Black, Jacksonville, Ill.; William S. Halsted, Baltimore; George N. J. Sommer, Trenton, N. J., and Miss M. M. Loomis, Chicago.

FOREIGN

Personal.—Sir William Ramsay has been elected a foreign associate of the Paris Academy of Sciences to fill the vacancy caused by the death of Alexander Agassiz.——The Albert medal of the Royal Society of Arts for this year has been awarded to Madame Curie for the discovery of radium.——Mr. Robert Newstead, lecturer at the Liverpool School of Tropical Medicine, has gone to Malta to investigate the rôle of the sand-fly as a carrier of disease.——The Order of C. M. G. has been conferred on Dr. A. D. P. Hodges, principal medical officer of the Uganda Protectorate, in recognition of his services in suppressing sleeping-sickness.

The Approaching International Congress of Gynecology.—Every effort is being made to have the Fifth International Congress of Obstetrics and Gynecology, which convenes at St. Petersburg, Russia, in September, surpass in attendance and interest all previous meetings of the kind. An exhibition is to be held in connection with the congress and the committee of organization is inviting exhibits from all parts of the world, especially surgical instruments, modern and ancient; objects pertaining to the equipment of laboratories, operating and lying-in rooms, etc.; objects relating to the nursing of new-born infants; plans of obstetrical clinics and gynecologic sections of hospital; objects for the study of midwifery and gynecology; portraits of medical men who have distinguished themselves in the history of midwifery and gynecology; books on gynecology and midwifery; pharmaceutical preparations, etc. Exhibits should be delivered at their destination not later than September 1, addressed as follows: "For the Exhibition in connection with the Fifth International Congress of Obstetrics and Gynecology, No. 3 University Line, Vasilievsky Ostroff, St. Petersburg." The most interesting exhibit, however, probably will be the new model institute for midwifery and gynecology built to realize Professor Ott's ideals. Among the special questions to be considered by the congress are: "Cesarean Section," by Baum, Brandt, Doléris and Routh. "Non-Operative Treatment of Cancer of the Uterus," by Mangiagalli, Bet-ix and Meyer. "Comparative Value of the Different Procedures in the Treatment of Displacements and Deviations of the Uterus," by Schauta, Westermark and Hofmeier. "The Vaginal Route," by Martin, Jung, Treub and Wertheim. "Influence of the Nervous System in the Origin and Control of Uterine Hemorrhages," by Macnaughton-Jones and others. Registration fee is $5.25. The transactions will be sent free to all members whether they attend or not. Other information may be obtained from Dr. Charles A. L. Reed, Chairman of the Committee for the United States, 60 The Groton, Cincinnati.

CANADA

Personal.—Drs. Helen MacMurchy and R. A. Reeve, Toronto, have gone to England.——Dr. Charles Sheard, Toronto, has been re-appointed medical health officer for Toronto.——Dr. William Oldright, Toronto, has resigned from the chair of hygiene in the University of Toronto and Dr. John A. Amyot has succeeded him.——Drs. Gibb and Willinsky, of Toronto; Gunn, of Kenora (Ont.), and Kelley, of Hamilton, are doing graduate work in Vienna.——Dr. G. Sterling Ryerson, Toronto, is in Paris, France.——Dr. Oskar C. Grunner, late clinical pathologist to the Infirmary, Leeds, England, has been appointed pathologist to the Royal Victoria Hospital, Montreal, and lecturer on pathology at McGill University.——Dr. J. D. McKay, Marion, Ind., has been visiting in Toronto and at his old home, Whitly, Ont.

Annual Meeting Ontario Medical Council.—The forty-fifth annual meeting of the Ontario Medical Council was held in Toronto July 5-9. The meeting was made unusually lively owing to charges by a medical journal of Toronto that the finances had been mismanaged. Dr. J. Lane, Mallorytown, was elected president; Dr. R. J. Gibson, vice-president, and Dr. John L. Bray, Toronto, registrar. The council unanimously approved of the amended Roddick bill as favored at the recent meeting of the Canadian Medical Association. A statement of the finances showed that the funds had diminished during the past year by about $7,000. As this is the last session of the present council, elections taking place in December, next, suggestions to retrench, to economize, to reduce examinations and reduce representation were duly discussed, but no definite action taken thereon. The council decided to engage the service of a chartered accountant as auditor, and to allow the complaining editor to examine the books. It was decided to cease issuing a stenographic report of the proceedings.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 9, 1910.

Lead and Dust in Pottery Works

The committee appointed by the government in 1908 to inquire into lead poisoning and other injuries to health in the pottery trades has, after a most exhaustive inquiry, issued what is probably the most important report on this subject ever published. Many pottery works in different districts were visited, delegates from manufacturers and workpeople's associations were interviewed, many witnesses were examined, including factory surgeons, inspectors and workpeople of various kinds. The inquiry covers 550 pottery works employing 63,000 persons and 7 lithographic-transfer works. The special dangers to which pottery workers are exposed are two-fold—lead poisoning and inhalation of dust without lead. Attention has chiefly been drawn to the former but it appears that the latter affects a much larger number of workers and produces more serious consequences. Out of the 63,000 workers only 6,856 (11 per cent.) are brought into contact with lead, whereas 23,000 (36 per cent.) are exposed to inhalation of dust. The remaining 53 per cent. are not exposed to any particular danger to health. Dr. Reid, health officer for Staffordshire (in which the greater number of the potteries are situated) has worked out the excess of mortality attributable to the two causes and finds that the excess among those exposed to lung disease from inhalation of dust is 7 per 1,000, whereas among the lead workers it is only 0.8 per 1,000. When the proportion of those exposed to risk is reckoned the fatality of the former cause is more than 8 times greater than that of the latter.

The morbidity caused by lung disease is believed to be also greater in at least the same proportion. In recent years the number of cases of lead poisoning has considerably diminished; in 1898 they numbered 457 and in the following years 249, 200, 106 and 87, respectively. But since 1902 there has been no diminution until 1909, when the number was only 58. From 1898 to 1902 the number of attacks fell from 74 to 13 per 1,000, but since then there has been no further improvement until 1909.

Only a small proportion of cases of plumbism are fatal; the average death-rate for the last 11 years is 1 per 1,000 workers in lead. But short of definite symptoms the general health is impaired in many operatives and miscarriages are abnormally frequent among married women working in lead. Lead is used in pottery in the form of glazes and of colors. The great majority of cases of poisoning are caused by the former. Special attention was paid to the question of leadless glazes which has been the subject of much controversy. Evidence was invited from every firm known to make a specialty of leadless glazes. Only 2 manufacturers out of 44 said that they were entirely successful in using leadless glaze for the whole of their output and these made a very cheap class of pottery. Some firms have had partial success and others have abandoned the attempt. Dr. J. W. Mellor, technical instructor in pottery manufacture, has been conducting researches for some time and is not sanguine of finding a substitute for lead. A number of government departments have been buying leadless ware for some years but they say that the price is enhanced and the quality unsatisfactory. After 5 years the war office has given up the exclusive use of leadless wares. The general conclusions drawn by the committee are that in all classes of pottery many articles can be manufactured in a high state of perfection with leadless glaze but that in the better class owing to the excessive number of "seconds" the cost is increased and that owing to difficulties in reproducing old patterns, colors, or methods of decoration, certain wares cannot be made without lead. An alternative to leadless glaze is the rendering of lead insoluble to weak acids (and consequently non-absorbable into the system) by "fritting" it with siliceous matter. In 1900 the government proposed to make the fritting of lead compulsory and to prohibit the use of any material containing more than 2 per cent. of soluble lead compound. But the manufacturers objected, and as the result of an inquiry a standard of 5 per cent. was proposed,

but even this was not rendered compulsory. Manufacturers were encouraged to adopt it by being exempted from conditions, including compensation for lead poisoning. Only a small number of factories have taken advantage of this provision. The question has been again investigated by the committee with much the same result. The weight of evidence was against the practicability of the general use of low-solubility glazes. The committee simply urge that manufacturers should be encouraged to persevere with experiments in leadless and low-solubility glazes by the relaxation of restrictions in factories where such glazes are used. An important point is the condition under which the industry is carried on in competing countries; in the United States and in Germany there are no special rules and in France the regulations relate only to ventilation, the wearing of masks, the use of tongs or gloves for dipping, etc. Among the recommendations of the committee is that women and young persons should partake of milk or cocoa made with milk in the morning before commencing work in scheduled lead processes and shall not be employed more than 46 hours a week.

The Antituberculosis Conference

The National Association for the Prevention of Tuberculosis has held its annual meeting at Edinburgh. The proceedings opened July 2 with the inauguration of the Royal Victoria Hospital Farm Colony. On Sunday a semi-religious meeting of the students of the university was held at which Prof. Osler delivered an interesting address on the antituberculosis movement entitled "Man's Redemption of Man." The Countess of Aberdeen opened the exhibition and described the great success of the work of the Woman's National Health Association of Ireland (of which she is president) in combating the disease. The first tuberculosis exhibition was held at Dublin in 1907 and was subsequently divided into two, one of which went north and the other south, and 80 exhibitions were held in different parts of Ireland. Traveling vans were also sent out and visited 223 places giving popular lectures. So excellent was the work done that the association was awarded a prize of $1.000 at the tuberculosis congress in New York for the most effective work done by any voluntary association in the world.

PARIS LETTER

(From Our Regular Correspondent.)

PARIS, July 8, 1910.

Vaccination of Foreigners

A senator, M. Louis Martin, has just presented a bill providing that every foreigner who makes a declaration of residence in France shall be obliged to produce a certificate of vaccination or of revaccination dated not more than three months previously for himself and for all members of his family.

Substitution of a Medicament in a Prescription

A Paris pharmacist undertook to replace 50 cg. of musk by tincture of musk in a physician's prescription. The physician who gave the prescription proved the substitution and prosecuted the pharmacist. The courts condemned the pharmacist and his apprentice each to pay a fine of $100 (500 francs) on the ground that the pharmacist had arbitrarily denatured the principal element in the prescription so as to be able to give it at a lower price than other pharmacists. The judgment affirmed that pharmacists were forbidden to substitute one drug for another, or even to modify the nature or the proportions of the elements in the prescription.

Jubilee Book Dedicated to Prof. J. Teissier

The excellent German custom of publishing, on the jubilees of celebrated professors, *Festschriften*, to which the pupils and friends of the master contribute, has been followed in France on the occasion of the twenty-fifth anniversary of the professorship of Dr. J. Teissier, professor of clinical medicine at the Lyons College of Medicine (THE JOURNAL, Jan. 15, 1910, p. 218.) The jubilee book, made up of a series of original memoirs dedicated to Professor Teissier, contains, it is particularly interesting to know, contributions not only from French professors, such as Arloing, Bard, Chauffard, Pierre Marie, Widal, etc., but also from foreign professors, especially Italians, such as Bacelli, Bossi, Maragliano, Mariani and Patella. Dr. His, professor of clinical medicine at the Berlin college of medicine, has also contributed a memoir on chronic rheumatism in gout. He concludes with a declaration of his great satisfaction in being able to testify to Professor Teissier that his works, which have contributed to the elucidation of this difficult subject, as well as the views of the French school, have found beyond the frontier the appreciation which they justly deserve.

The Albert Medal Awarded to Mme. Curie

The British Royal Society of Arts has just given its highest award, the Albert medal, to Mme. Curie. The former recipients were Lord Kelvin, Pasteur, Edison, Lord Lister, Lord Rayleigh and Sir Andrew Noble.

Election of Two Foreign Correspondents to the Academy of Medicine

On July 5 the Académie de Médecine elected as foreign correspondents Drs. Pagliani of Turin and Filehne of Breslau.

Dr. Huchard and Reform of Medical Instruction

Dr. H. Huchard has just addressed to the professors of the medical schools an open letter enumerating the principal reforms which he considers necessary in medical instruction. In the first place, in certain university centers, especially in Paris, the number of students ought to be limited. In the interests both of the students and of the patients in the hospitals the distribution of the *stagiaires* in the hospital services ought to be made more uniform and more equitable. The requirements of the *concours d'agrégation* ought to be enlarged so as to permit all physicians who are competent to participate in instruction. All the *concours d'agrégation* ought, moreover, to be held, as formerly, in all the medical colleges, which would thus be emancipated from Paris. While declaring himself a convinced partisan of the system of the *concours* which gives less opportunity for unfairness, Dr. Huchard thinks that certain *concours* might be suppressed without loss. Thus the hospital externs might be appointed merely in accordance with their records at the end of the year. The appointment of professors for vacant chairs might be made from a list of eligibles composed of two *agrégés* and one unattached professor, not an *agrégé*, who had given proof of ability by published works, discoveries and instruction. Moreover, there ought to be no age limit for professors, because advanced age does not always mean diminished energy. Some theoretical chairs, especially those of medical and surgical pathology, ought to be transformed into clinical and therapeutic chairs at the hospitals. There are practical specialties indispensable to young practitioners which, though given abroad, are taught insufficiently or not at all among us; such are otolaryngology, stomatology, clinical bacteriology, electrotherapeutics, climatotherapy and hydrology. Dr. Huchard recommends the payment of professors both by the government and by the pupils.

International Conference for the Suppression of Fraud

The International Congress of Applied Chemistry, held at Rome in 1906 passed the resolution that the unification of legislation for the suppression of fraud ought to be preceded by the unification of methods of analysis, in order to avoid divergencies in the definition of fraud, which might become a source of conflict in international commerce. For this purpose the Italian government proposed the holding of an international conference at Paris because it is in France that the analysis of foodstuffs has been carried farthest. The conference will be held in Paris. Besides France, the countries represented are Belgium, Bulgaria, China, Denmark, the United States, Great Britain, Greece, Italy, Mexico, Norway, the Netherlands, Portugal, Sweden and Switzerland.

Disadvantages of Holding Several Congresses at the Same Time

The Third International Congress of Educational Hygiene will be held in Paris, August 2-7, at the same time as the *Congrés des aliénistes et neurologistes de langue française*, which will be held in Brussels, and at the same time as the annual meeting of the *Association Française pour l'avancement des sciences*, which will be held at Toulouse. This coincidence illustrates once more the fact that the organizers of scientific and medical congresses take no pains to ascertain whether the date which they choose conflicts with that of other scientific meetings. The *Bulletin Médical* calls attention to the disadvantages, especially in the present instance, of this neglect. The alienists and neurologists have placed the question of abnormal mentality in schools on its true basis. It is therefore deeply to be regretted that a congress on educational hygiene could be deprived of the valuable assistance of psychiatrists by such a conflict of dates as occurs. Moreover, the *Association Française pour l'avancement des sciences* has an important part in the scientific development of our country and it seems unfortunate that an international congress

to be held in Paris did not choose some other date than that of the annual meeting of this association. Such undesirable conflicts might easily be avoided by care and forethought on the part of the organizers.

A Reward for Professional Courage

During the efforts made to rescue from the sea those who were shipwrecked in the submarine *Pluviôse*, the exemplary conduct of Dr. Savidan, physician in the marine service, has attracted particular attention. The government has just made Dr. Savidan chevalier of the Legion of Honor for "exceptional service rendered during the operations of the *Pluviôse*, where he gave proof of courage, devotion and the highest professional qualities in directing the reclaiming of the bodies of the victims." The President of the Republic himself intends to pin the cross of the Legion of Honor on Dr. Savidan.

BERLIN LETTER

(*From Our Regular Correspondent*)

BERLIN, June 30, 1910.

Hygiene in Hotels

In spite of all the efforts of the medical and lay public to secure the observation of hygienic principles by hotel-keepers, much remains to be desired. The same may be said for health resorts. The German association for popular hygiene at its last session adopted the following requirements: 1. The bed clothes must be either completely covered with a linen tick or they must, according to the custom in England and partly in France, be placed under a washable spread. 2. Under the sheet there must be either a horse hair mattress or a woolen tick. 3. The room must be thoroughly cleansed before the reception of a new guest and the bed must be shaken up and thoroughly aired. 4. The carpets in the room must not be nailed down or be held by heavy articles, but with the exception of tables and chairs they must lie between the furniture so that they may be cleaned at any time. 5. The ventilation of the closet must have an outlet into the chimney and to the outside air. 6. The napkins must either be thoroughly cleansed after use or must be made of paper and thrown away after a single use. 7. Dogs must not be allowed in the restaurant rooms. 8. The food exhibited, even bread, must be placed as far as possible under glass bell jars and especially the handling over of the rolls, etc., on the tables must be forbidden. A charge for a seat or an increase in the price of the food should be introduced for the consumption of alcoholic beverages. Also it would be very desirable if the restaurants furnished small bottles of fruit juices for the preparation of lemonade as they now do with spirits.

Personal

The Heidelberg surgeon, Professor Narath, retires from teaching at the end of the summer semester on account of his health; his successor is Professor Wilms of Basel. Professor Narath succeeded Professor Czerny.

Professor Bruns of Tübingen will retire at the end of the summer semester from his position as director of the surgical clinic at Tübingen. Since Professor Anschütz of Kiel has declined the call, Professor Payr of Greifswald has been offered the place, but it is not probable that the latter will leave Greifswald for Tübingen.

Unveiling of the Virchow Monument

The Rudolf Virchow monument was unveiled June 29. As I told you at the time, the model selected created quite a sensation especially among Berlin physicians. It was impossible to change it because the monument committee had very hastily concluded a fixed contract with the sculptor. It is the general impression that the monument in no way answers the requirements of giving a correct representation of Virchow's personality. The principal part of the monument presents a robust athlete of gigantic dimensions who has seized by the throat a fabulous beast provided with a tail and is choking it to death. By this it is supposed that the fighting nature of Virchow is symbolized. Virchow himself is in fact represented on a medallion which is placed on the pedestal. The well known tired features of the great investigator contrast in the most striking way with the athlete above. On the posterior side of the pedestal is a tablet which is to immortalize the principal contemporaries of Virchow.

Number of Students at Universities

About 55,000 students have matriculated in all the twenty-one German universities, including 2,200 women. Berlin has the greatest number, 7,902, next comes Munich with 6,890, and Rostock has the least, 834. There is again an increase in the number of medical students from 9,462 last year to 10,682.

Ehrlich's Syphilis Treatment

At the internal medicine congress Ehrlich made a report on the remedy discovered by him in conjunction with Hata, an arsenic preparation called dioxydiaminoarsenobenzol, from which it appears that remarkable curative results have been achieved with it. This impression is distinctly confirmed by the statements made by the dermatologist, Dr. Wechselmann, and others at the last meeting of the Berlin Medical Society. Professor Neisser has also published a similar report in the *Deutsche medizinische Wochenschrift*. According to his observations the remedy produces a marked and surprising effect, not only on the spirochete but also on the products of syphilis. The spirochetes in many cases, not only in animal syphilis but also in that of men, disappear in from 24 to 48 hours from primary lesions and condylomata in which they were abundantly present before the administration. Syphilitic processes retrogress in many cases so rapidly that there can be no doubt as to the specific action of the remedy. Neisser reports a case of severe syphilis of the brain, in which treatment with large doses of mercury and potassium iodid had been unsuccessful, in which a single injection of 0.3 gm. produced a remarkably rapid disappearance of all subjective and objective symptoms. When possible the remedy is injected intravenously. Intramuscular injections usually occasion notable local pains and hard infiltrations; these disappear in from six to eight days leaving no trace. As a result of intravenous injection, a rise of temperature to 39.5 C. (103 F.) has occasionally occurred and vomiting has been frequent; after a few hours the symptoms disappeared. Neisser is convinced of the value of the new remedy in all respects. [An article on this substance appeared in THE JOURNAL, July 16, page 216.]

VIENNA LETTER

(*From Our Regular Correspondent*)

VIENNA, July 1, 1910.

The Eighth International Congress on Physiology

This meeting of physiologists will take place on September 27-30 in Vienna in the Physiologische Institut, IX Währingstrasse. The languages of the congress will be German, English, French and Italian, and apart from the scientific transactions of the meeting, a very interesting social gathering is expected, because the municipality of the city will give a banquet in honor of the foreign guests.

The Hungarian Antituberculosis Society

The report of the Hungarian Sanatorium Society for Poor Phthisical Patients, which has existed now for 12 years, offers a few interesting figures. In 1909, no less than 767 patients, who stayed over 46,000 days, had to be housed and cared for. The ratio of cures was 35 per cent. Cures are regarded as complete, if the patient is able to return to his usual light work without danger. The society has spent 1,000,000 kronen ($200,000) in erecting a new wing of the existing Elizabeth Sanatorium which has proved too small for the demands on it. This shows how much the people appreciate the opportunity. Tuberculosis is not very frequent in Hungary except in the towns where modern industries cause a flocking of laborers into slums under very unhealthy conditions, as in all rapidly developing countries.

Report of the Budapest International Congress, 1909

The executive committee of the Sixteenth International Medical Congress has now published its report. The transactions of the congress comprise 800 pages in one volume, and will be distributed to the members. Owing to grants by the government and the capital and to financial sacrifices of 21 presidents of the sections, a surplus was obtained which will be devoted for the purpose of a yearly grant or scholarship. This will be international, open to all competitors, and will be granted by the Budapest medical faculty.

Expenditures for Medical Institutions

In consequence of very energetic action by medical students and professors, the ministry of education, to whose province the medical institutions belong, has at last decided to devote a large amount for the purpose of obtaining the most urgent institutes. Thus the erection of the physical and chemical

institute, which has been promised for four years, has actually been begun this summer, and a sum of 5,000,000 kronen ($1,000,000) has been fixed as the limit for expenditure for this item. Another 300,000 kronen ($60,000) will cover the cost of new book-stacks for the enormously increased medical library of the university in this city. A sum of 3,500,000 kronen ($700,000) has been granted for the clinical, gynecologic and pathologic-anatomic institute in Graz, which city is badly in need of modern teaching facilities. The cost of remodeling the obstetric clinics in Prague will be $50,000, while an equal sum has been devoted for the purpose of a botanical garden for teaching purposes in Lemberg. The University of Cracow has received $70,000 for the veterinary institute and hospital. A sum of $300,000 has been devoted (and really paid, which is the most remarkable fact), for improvements in various other medical institutions in all the seven universities of our country. Legislation being somewhat haphazard here on account of political differences between the various and numerous national and racial parties, a bill, even when passed, cannot be regarded as valid until it is really put into effect by an energetic official. Luckily, we have at the head of the sanitary departments of our ministry of education, as well as in the home office, men who understand that progress in medical science cannot wait until the funds are granted but who build first, and then get the money for the institutions at all costs.

Marriages

WALLACE BLANCHARD, M.D., to Miss Gahfea Brandt, both of Chicago, July 12.

ALBERT NEIL LEGG, M.D., to Miss Clara Wood Barger, both of Philadelphia, June 30.

BIRD HAGANS MILLER, M.D., to Miss Mattie Strachan, both of Blockton, Iowa, June 29.

HENRY J. PYLE, M.D., to Miss Frances Van Zoeren, both of Grand Rapids, Mich., June 9.

AMOS MCK. JONES, M.D., Anson, Texas, to Miss Winnie Brooks, of Evant, Texas, July 6.

LEWIS W. DUDLEY, M.D., Elgin, Ill., to Miss Marion T. Connell, at Fond du Lac, Wis., June 29.

HARRY EPHRAIM PLUMMER, M.D., to Miss Mabel Dibblee Price, both of New York City, July 6.

JAMES LOUIS EARLY, M.D., Saltville, Va., to Miss Melita Rorer Wilson, of Radford, Va., June 30.

MIAL R. LYMAN, M.D., Bad Axe, Mich., to Miss Elizabeth E. Deno, of Saginaw, at Cuba, Ill., June 30.

GEORGE CARROLL RHOADES, M.D., U. S. Navy, to Miss Elizabeth Selden Baxter, of Elizabeth City, N. C., July 7.

DAVID YANDELL ROBERTS, M.D., to Miss Alla May Sweeney, both of Louisville, Ky., at Jeffersonville, Ind., July 4.

ALEXIUS MCGLANNAN, M.D., Baltimore, Md., to Miss Sally Porter Law, of Hartford, Conn., at Philadelphia, July 2.

Deaths

Mihran K. Kassabian, M.D. Medico-Chirurgical College of Philadelphia, 1898; a member of the American Medical Association; vice-president of both the American Electro-Therapeutic Association and the American Roentgen-Ray Society; formerly in charge of the Roentgen laboratory and instructor in electro-therapeutics in the Medico-Chirurgical Hospital and College; director of the Roentgen Ray Laboratory of the Philadelphia General Hospital; author of "Electro-Therapeutics and the Roentgen Rays;" an Armenian who came to this country in the year 1894 to study medicine; died in Philadelphia, July 12, from dermatitis, as the result of burns received during many years of practice with the Roentgen rays, after having several operations performed in an effort to check the progress of the malady, aged 42.

Walter Joseph McEvilly, M.D. Barnes Medical College, St. Louis, 1903; a member of the American Medical Association; president of Tama County, Iowa, Medical Society; of Dysart, Iowa; was killed by being struck by a train near Lombard, Ill., July 19, aged 41. With his wife and daughter he was on his way home in an automobile he had purchased, and all three met death together.

Charles Nathaniel Hewitt, M.D. Albany (N. Y.) Medical College, 1857; of Red Wing, Minn.; a veteran of the Civil War; executive secretary of the Minnesota State Board of Health for twenty-five years from the time of its organization in 1872; for some years professor of public health in the state university; died at the home of his daughter in Summit, N. J., July 7, aged 74.

Wallace Kilbourne Oakes, M.D. College of Physicians and Surgeons, New York City, 1873; a member of the American Medical Association; of Auburn, Maine; formerly a member of the State Board of Health and a member of the United States Board of Pension Examining Surgeons; died suddenly at Poland Spring, Maine, July 8, from cerebral hemorrhage, aged 59.

Frederick Augustus Lyons, M.D. College of Physicians and Surgeons, New York City, 1876; a member of the New York Academy of Medicine, the New York Medico-Surgical Society, and the American Academy of Medicine; surgeon to the New York Fire Department since 1885; died at his home, July 5, from sarcoma, aged 55.

Robert J. Walker, M.D. Columbus (Ohio) Medical College, 1884; a member of the Ohio State Medical Association; of Toledo, Ohio; was found dead on a sleeping car on the Michigan Central Railroad at Rochester, Mich., while returning to Toledo from Mackinac, July 7, from cerebral hemorrhage, aged 48.

James Philip Wallace, M.D. Jefferson Medical College, Philadelphia, 1864; Bellevue Hospital Medical College, New York City, 1866; regimental surgeon of the Fiftieth Indiana Infantry during the Civil War; of Colorado Springs, Colo.; died at Nogales, Ariz., June 19, from nephritis, aged 69.

John Benton Farley, M.D. Vanderbilt University, Nashville, Tenn., 1886; a member of the Medical Association of the State of Alabama; a well known planter and practitioner of medicine; died at his home in Farley, Madison county, Ala., July 7, from typhoid fever, aged 50.

Henry Clay Grover, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1855; surgeon of the Twentieth Indiana Infantry during the Civil War; a member of the state legislature in 1879; died at his home in Rushford, Minn., July 4, from senile debility, aged 79.

Richard Temple Walker, M.D. Medical College of Virginia, Richmond, 1874; a member of the Florida Medical Association; acting assistant surgeon, U. S. P. H. and M.-H. Service, stationed at Cedar Keys, Fla.; died at his home in that place, June 26, aged 58.

Asahel Norton Brockway, M.D. College of Physicians and Surgeons, New York City, 1861; assistant surgeon in the United States Army during the Civil War; of New York City; died at Clinton, N. Y., July 4, from cerebral hemorrhage, aged 74.

Claude Van Bibber, M.D. University of Maryland, School of Medicine, Baltimore, 1877; a member of the Medical and Chirurgical Faculty of Maryland; of Baltimore; died at St. Joseph's Hospital in that city, July 11, from nervous disease, aged 57.

Thomas Cammack, M.D. Medical Department of the Columbian University, Washington, D. C., 1845; an active practitioner of medicine of Milford, Ind., for sixty years; was found dead in bed at his home in that place, July 9, aged 87.

John Bartlett, M.D. University of Louisville (Ky.) Medical Department, 1850; a member of the American Medical Association; a pioneer physician of Chicago, having practiced on the north side since 1862; died at his home, July 18, from pneumonia, aged 81.

William Alonzo Upperman, M.D. Western Pennsylvania Medical College, Pittsburg, 1903; physician for the Pittsburg Plate Glass Company at Ford City, Pa.; died at his home in that place, July 3, from heart disease, aged 35.

Henry Clay Paddock, M.D. University of Michigan, Department of Medicine and Surgery, 1879; physician to Manhattan Eye, Ear and Throat Hospital, New York City; died in that city, Nov. 9, 1909, from pneumonia, aged 61.

Patrick Thomas Sullivan, M.D. Georgetown University School of Medicine, Washington, D. C., 1895; of McKees Rocks, Pa.; died at Mercy Hospital, Pittsburg, July 6, from cerebral hemorrhage, aged about 40.

Nathaniel R. Gerry, M.D. University of Maryland School of Medicine, Baltimore, 1864; of Catonsville, Md.; died at St. Agnes Hospital, Baltimore, where he had been a patient for nearly a year, July 2, aged 78.

Chesterfield Harrell Smith, M.D. Atlanta (Ga.) Medical College, 1880; of Areadia, Fla.; died at Candler, N. C., where

he had gone to spend the summer, June 28, from cerebral hemorrhage, aged 54.

J. Louis Gahm, M.D. Medical College of Ohio, Cincinnati, 1887; a member of the American Medical Association; of Jackson, Ohio; died at Grant Hospital, Columbus, July 6, from mastoiditis, aged 48.

William W. Cleaver, M.D. University of Louisville (Ky.) Medical Department, 1850; a member of the Kentucky State Legislature in 1893; died at his home in Lebanon, Ky., July 4, from paralysis, aged 83.

Philip Dickes, M.D. Bellevue Hospital Medical College, New York City, 1886; a member of the American Medical Association; died at his home in Greenville, Ohio, July 7, from cancer, aged 57.

Daniel C. Carroll, M.D. University of Arkansas, Little Rock, 1881; a member of the Arkansas Medical Society; of Tillar, Ark.; died at Eureka Springs, June 30, from hepatic cirrhosis, aged 52.

William Trect Mahon, M.D. Jefferson Medical College, Philadelphia, 1883; a member and president of the Nanticoke, Pa., Board of Health; died at his home, July 1, from nephritis, aged 58.

George W. Bowen, M.D. Hahnemann Medical College and Hospital, Chicago, 1863; a resident of Fort Wayne, Ind., since 1858; died in that city, July 7, from senile debility, aged 84.

Thomas R. Newman, M.D. University of Tennessee Medical Department, Nashville, 1890; died at his home in Nashville, July 4, from congestion of stomach and liver, aged 43.

Charles Lewis Wingfield, M.D. University of Pennsylvania, 1848; a member of the Medical Society of Virginia; died at his home in Warren, June 27, from diabetes, aged 84.

John W. P. Bates, M.D. Jefferson Medical College, Philadelphia, 1862; a resident of Baltimore for nearly fifty years; died in that city, July 8, from nephritis, aged 74.

C. L. Clarke, M.D. Memphis (Tenn.) Hospital Medical College, 1893; of Manchaca, Texas; died at the Muskogee, Okla., Hospital, July 6, following an operation, aged 43.

Franklin Raymond Rawls, M.D. Vanderbilt University, Nashville, Tenn., died suddenly at his home in Taft, Tenn., April 26, from heart disease, aged 55.

Thomas J. Davison (license, Ind., 1881); a veteran of the Civil War; died suddenly at his home in Ebensburg, Pa., July 1, from angina pectoris, aged 72.

John Park Mason, M.D. University of Buffalo (N. Y.) Medical Department, 1880; formerly of Houghton, Mich.; died at Elmira, N. Y., July 4, aged 56.

William Arthur Snoke, M.D. Drake University College of Medicine, Des Moines, Iowa, 1898; died at his home in New Corydon, Ind., July 1, aged 35.

E. Miles Willett, Jr., M.D. Memphis (Tenn.) Hospital Medical College, 1884; of Memphis; died at St. Joseph's Hospital in that city, July 11, aged 46.

Adam A. Hessell, M.D. College of Physicians and Surgeons, Chicago, 1891; died at his home in Put-in-Bay, Ohio, July 7, from heart disease, aged 42.

Jacob Randall (license, 1878, Ill.); said to have been the oldest physician in Washington County, Illinois; died at Okawville, Ill., July 8, aged 85.

Ludwig Ullmann, M.D. Pennsylvania Medical College, Gettysburg, 1861; died at his home in Springfield, Mo., June 30, from cystitis, aged 80.

Pharmacology

MRS. CORA B. MILLER'S HOME TREATMENT *

Another Fraud Put Out of Business by the Post-Office Authorities

Kokomo, Ind., has long been known to the readers of not-too-particular newspapers and magazines as the headquarters of a philanthropic lady who for some years has been "spending a fortune in giving medical treatment absolutely free to suffering women"—Mrs. Cora B. Miller. The scheme was to send a free treatment to all women applying for it and to urge the prospective victim to take the regular treatment, price, $1. Form letters, "follow-up" letters and the other paraphernalia of the mail-order house were used in the usual way to relieve the gullible sick of their money. How well it succeeded was recently brought to light when the postal authorities looked into the concern and found that the gross receipts of the business were in excess of $100,000 a year. In fact, the postmaster of Kokomo testified that during the fiscal year ending June 30, 1909, over $81,000 was paid to the concern on money orders presented by it and that a great deal more had been received by registered mail.

The "dope" furnished by "Mrs. Cora B. Miller"—apparently the same for all cases, whether a mild leucorrhea, a displaced uterus or a uterine carcinoma—was analyzed in the government laboratory, and according to the analysis, found to consist of:

Boric acid	39.96 per cent.
Tannin	5.78 per cent.
Cacao butter	54.03 per cent.
Carbolic acid	Trace.

(Average of three analyses.)

A box of this nostrum sold for $1; the cost of it probably was less than six cents. It is not surprising to read, therefore, that "Mr. Miller is without other source of income and has grown rich in this business . . . his holdings in real estate are probably more valuable than those of any other person in the county in which he lives."

Throughout the advertisements and circulars the implication was made that a woman—to-wit, Mrs. Cora B. Miller—was in charge of the business, had originated the "treatment" and directed the medical treatment of the dupes who wrote to the concern. All circular letters were signed "Mrs. Cora B. Miller," and every effort was made to convey the impression that a woman was running the business. As a matter of fact, the government showed that the business was conducted by Frank D. Miller, who started it under the name of the Kokomo Medicine Company and conducted it under this name until after his marriage, when it was reorganized and incorporated in his wife's name. According to the report, Mrs. Miller had nothing whatever to do with the conduct of the business, had never had any training that would fit her to prescribe for women's ailments and, in fact, her name was evidently used only as an advertising asset—much in the same way as the old Lydia Pinkham advertisements exploited that long-since-deceased individual.

Miller himself is not a physician and the investigation showed that the medicine was compounded by the clerks and stenographers whom the concern employed; the same clerks also answered—by means of form letters—the inquiries sent in by the victims. Miller claimed that his concern employed a "consulting physician" in the person of Dr. Chancellor, who was supposed to call at the office of the concern about once a week. Dr. Chancellor was very rarely consulted, in fact, there was no need of it apparently, if all the victims received the same boric acid and tannin mixture.

Testimonials? Of course. There was never a medical fraud so blatant nor an imposition so brazen but could show testimonials in its favor. As the assistant attorney-general said in summing up the case against this concern: "The treatment, because of its antiseptic and astringent character, will undoubtedly palliate certain symptoms, and it is plain that the patients who have given these testimonials have been troubled only with conditions that the medicine will help. . . . . This is, in fact, one of the most pernicious characteristics of this business; the company is aided greatly in its efforts to foist this remedy on the public by these statements which are, no doubt truthfully quoted, but which are the result of self-deception and known to be so by the promoters of the business."

In view of the evidence, the assistant attorney-general declared the concern to be "a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises," and recommended that a fraud order be issued against the Mrs. Cora B. Miller Company. The order was issued.

* A more complete account of the government's action in this case will be published in pamphlet form—illustrated—suitable for physicians to distribute among their patients. Price, four cents.

Alkalithia and the Council

The following letter is from Dr. Albert Mueller, Commissioner of Health, Rock Island, Ill.:

To the Editor:—A detail man for the Keasbey & Mattison Company (Ambler, Pa.) was in my office to-day and left samples of their goods, such as Alkalithia, etc.

"On questioning him, as I do all these people, whether Alkalithia had been submitted to the Council for approval and insertion in New and Nonofficial Remedies, he replied that several years ago such a procedure was done and that the Council *accepted Alkalithia* but wished to censor the advertising matter sent to physicians. To this Dr. Mattison would not agree. He added that for $100 the product would be accepted, and all could be "fixed up" with the Council, therefore intimating that the Council could be bribed.

"I am writing this because in my opinion such stories can do the Association much harm and bring discredit on the Council, if they continue unrefuted. I, for one, am heartily in favor of the good work the Council is doing and account for this criticism as being due to the malice and spite of rejected manufacturers."

A copy of Dr. Mueller's letter was sent to the Keasbey & Mattison Company with a request for an explanation. The firm in replying stated that it "would not countenance any statement of this kind." The president of the Keasbey & Mattison Company in a later letter said that the agent in question had denied having made the statement reported by Dr. Mueller, and the president intimated that he did not believe the agent ever made such a statement.

The question thus resolves itself into one of personal veracity between Dr. Mueller and the agent for Alkalithia. Whether it is more likely that a reputable physician of high standing in his community should fabricate a slander on the Council, with no conceivable object in view than that the agent for a proprietary product that has been rejected by the Council should do so, we leave for the medical profession to decide.

If any other physicians have had an experience similar to that reported by Dr. Mueller, we should be pleased to hear of it. Such coincidences would prove interesting.

Correspondence

The Term Allopathy—A Protest

To the Editor: In the article, "The Medical Sects," THE JOURNAL, July 9, 1910, p. 146, occurs the following passage: "Allopathy was just as sectarian as homeopathy. Indeed homeopathy was the inevitable retort to allopathy." Here is given a false impression—indeed, a misstatement of the facts. Both terms were the invention of Hahnemann; with him began the "pathies" and it is certainly time that scientific medicine put an end to them.

JOSEPH A. COGAN, Boston.

Smallpox and Vaccination in Japan

To the Editor:—The opponents of vaccination in England and in the United States are circulating the statistics of smallpox in Japan in recent years with a view to discrediting the prophylactic effect of vaccination in that country. They point out that Japan, which is supposed to be a thoroughly vaccinated country, has had, in the twenty years from 1889 to 1908, 171,500 cases of smallpox, and that in 1908 there were 18,139 cases. If the inhabitants of Japan were all thoroughly well vaccinated, these figures would seriously challenge the effectiveness of vaccination as a preventive measure against smallpox. There is, however, information at hand to show that a very large number of Japanese subjects have not been successfully vaccinated, and this information comes to us from an unimpeachable and authentic source. Dr. T. Amako, director of the Municipal Hospital for Infectious Diseases in Kobe, Japan, has recently published an article entitled "A Study of the Variola Epidemic in Kobe" (*Arch. f. Schiffs- u. Tropen-Hyg.*, 1909, xiii, 409). He prefaces his statistics by stating that "fearful epidemics of smallpox have raged in Japan 70 times between the years 551 and 1884." He says that "vaccination was introduced into Japan in 1848, but was carried out very incompletely. In 1885, the first imperial vaccination law was passed and since then the former murderous epidemics of smallpox have been tremendously lessened through vaccination." In the year 1908, in the city of Kobe, with a population of 372,751, there were 4,184 cases of smallpox. Amako had an opportunity of observing 3,465 patients and of noting the relation between vaccination and smallpox in these cases. Of the entire number 1,607 patients, representing 46.4 per cent., were vaccinated and the remaining 1,856, or 53.5 per cent. were either unvaccinated or vaccinated unsuccessfully. Of the vaccinated patients, 116 died, representing a mortality of 7.2 per cent.; of the unvaccinated or unsuccessfully vaccinated patients, 851 died, representing a mortality of 45.8 per cent. It is thus seen that the mortality among the unvaccinated patients was nearly seven times as great as among the vaccinated cases.

There is certainly nothing in these figures which can possibly be construed to be unfavorable to vaccination. When by actual examination of the patients, an official finds over 50 per cent. of those suffering from smallpox to be unvaccinated or unsuccessfully vaccinated, there is no justification for the expectation that Japan should be free of epidemics of smallpox. It must be remembered, furthermore, that 18,000 cases of smallpox in a population of over 49,000,000 crowded together on a relatively small island is not excessive when compared with the number of cases in other countries. According to the estimate of John W. Trask, of the U. S. Public Health and Marine-Hospital Service, there were probably more than 70,000 cases of smallpox in the United States in 1908. It is thus seen that the smallpox statistics of Japan as compared with the United States are much in favor of the former country. As indicating the opinion of the Japanese government of the value of vaccination, we may take its attitude towards vaccination in Korea. The total number of persons vaccinated in Korea in 1908 was 544,630. Japan has established 30 official committees of vaccination among the 13 provincial Korean governments, and has appointed 600 official vaccinators among the district magistracies and prefectures. In addition, 48 noncommissioned official doctors have been attached to important local police stations to aid in the work of vaccination. (See abstract in *Literary Digest*, June 25, 1910, p. 1253). It is evident that this vaccination campaign is costing Japan enormous sums of money, but this progressive nation recognizes that the work is of great importance to its development and to the development of Korea. In view of the attitude of the Japanese government (which is certainly in possession of all the facts concerning vaccination within its own domain) the criticism of English and American antivaccinationists, interpreting the results of vaccination from afar and crying "failure," will convince no one save themselves.

JAY FRANK SCHAMBERG, Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SALT-FREE DIET

To the Editor:—Please give me more or less in detail, the salt-free diet treatment advocated by Dr. Magnus-Levy?

S. W. SAPPINGTON, Philadelphia.

ANSWER:—The term "salt-free diet" is scarcely appropriate, as the diet advocated by Magnus-Levy, Widal and others is a diet poor in salt, but not necessarily free from it. A diet poor in salt can be secured by the use of a milk diet for a time, but if milk is to be used to supply the total nutriment of the patient, it will itself contain too much salt. Therefore it is better to construct a diet consisting of carbohydrates, vegetables, fruit, milk and even some meat, to which

no salt is added in the cooking. Such a diet is found to satisfy the nutritive requirements of the patient and yet to give less salt than if a pure milk diet is employed. The following directions are given in describing this diet by F. Kraus and T. Brugsch ("Therapeutische Technik für die Aerztliche Praxis," by J. Schwalbe, 1910): 1. The bread should be baked without the use of salt. 2. Unsalted butter should be furnished. 3. Not more than 1 liter of milk should be used. 4. Meat should be boiled and given the patient without the broth. 5. Vegetables should be boiled for a long time in water and this water poured off. 6. The cook should be forbidden to use salt in any way in the preparation of food for nephritics. Such a diet is well borne by some patients, but others become tired of it and the question may arise whether the addition of some salt cannot be permitted. Widal has found that in such cases it is sufficient to allow the daily addition of from 1.5 to 2 gm. to be applied to the meat, which is the most insipid for these patients.

DISCOVERY OF THE CAUSES OF MALARIAL AND YELLOW FEVER

To the Editor:—1. When and by whom were the causes of malarial and yellow fever discovered? 2. Who lost their lives through these researches? 3. Which of the workers along this line are living? H. W. JONES, Arthur, Ill.

ANSWER.—1. The parasite of malarial fever was discovered by C. L. A. Laveran of Paris, in 1880. The transmission of malarial fever by the mosquito was suggested by Sir Patrick Manson, demonstrated by Major R. Ross and later confirmed and more fully developed by G. B. Grassi of Rome. The agency of the mosquito in transferring yellow fever was suggested by Dr. C. Finlay about 1880, but this agency was not demonstrated until 1900, when the experiments of the U. S. Army yellow fever commission, consisting of Major Walter Reed, James W. Lazear, James Carroll and A. Agramonte, were made.

2. We recall no deaths of investigators experimenting with malaria. Carroll and Lazear allowed themselves to be bitten with yellow fever infected mosquitoes; Dr. Carroll suffered a severe attack of the disease and Dr. Lazear died from yellow fever thus communicated. Dr. Carroll's obituary was published in THE JOURNAL, Sept. 21, 1907, p. 1048.

3. We believe that the principal workers on the theory of malaria transmission are still living. Of the American yellow fever commission only Agramonte survives.

OLIVE OIL IN DISEASES OF THE STOMACH

To the Editor:—Please give me some references concerning the use of oil in diseases of the stomach O. L.

ANSWER.—Hodgdon, A. L.: Olive Oil in Obstruction of the Esophagus, THE JOURNAL, Dec. 28, 1907, p. 2152.

Rutimeyer, L.: Oil in Treatment of Stomach Affections, *Cor.-Bl. f. schweiz. Aerzte*, Nov. 1, 1908; abstr. in THE JOURNAL, Dec. 5, 1908, p. 2009.

Bloch, W.: Benefits of Oil Treatment of Ulcers and Stenosis of Pylorus, *Arch. f. Verdauungsk.*, xiii, No. 6; abstr. in THE JOURNAL, Feb. 8, 1908.

Cowie, D. M., and Munson, J. F.: Experimental Study of Action of Oil on Gastric Acidity and Motility, *Arch. Int. Med.*, January, 1908; abstr. in THE JOURNAL, Feb. 22, 1908, p. 643.

Graham, E. A.: Olive Oil for Postanesthetic Nausea, THE JOURNAL, Dec. 18, 1909, p. 2094.

BOOKS ON DISEASES OF OLD AGE

To the Editor:—Please refer me to books on diseases of the aged. H. W. HOWARD, Prosser, Wash.

ANSWER:

Crichton-Brown: Prevention of Senility, Macmillan Co.

Lorand: Old Age, F. A. Davis Co.

Metchnikoff: Prolongation of Life, G. P. Putnam's Sons.

Minot: The Problem of Age, Growth and Death, G. P. Putnam's Sons.

Weber: Means for the Prolongation of Life, John Bale Sons & Danielsson, London.

DATA WANTED ON BLOOD-PRESSURE AMONG RAILROAD EMPLOYEES

To the Editor:—Has any blood-pressure work been done among railroad employees, and if so, where may I procure the publications? E. M. PARLETT, M.D.

The Public Service

Medical Department, U. S. Army

Changes for the week ended July 16, 1910:

Foster, George B., Jr., lieut., will report to the president Army Medical School in this city for a continuation of the course of instruction.

Michie, Henry C., Jr., lieut, will proceed to Fort Lincoln, N. D., for temporary duty.

Harris, Jesse R., capt., relieved from treatment at Army General Hospital, San Francisco, and will return to his proper station.

Hopwood, Lucius L., capt., is assigned to command of the one-half of Co. B, Hospital Corps, Camp of Instruction at Leon Springs, Tex., and at Atascadero, Cal.

Tignor, Edwin P., dental surgeon, granted 20 days' leave of absence about July 15, 1910.

Wertenbaker, C. L., M. R. C., relieved from duty at Fort Jay, N. Y., and ordered to Fort Gibbon, Alaska.

Ferrin, Carlisle F., contract surgeon, granted 28 days' leave of absence.

Shepard, John L., capt., relieved from duty at Fort Logan, Colo., and ordered to Philippine Islands for duty on transport sailing from San Francisco, November 5.

Howell, W. O., M. R. C., relieved from duty at Presidio of San Francisco, and ordered to Scofield Barracks, H. Ty., for duty.

Gunckel, George I., dental surgeon, left Fort McPherson, Ga., on 20 days' leave of absence.

Dean, Elmer A., major, left Fort George Wright, Wash., en route to camp at American Lake, Wash.

Pulver, A. L., M. R. C., reports in temporary charge of attending surgeon's office, New York City.

Fauntleroy, P. C., major, left Fort Benjamin Harrison, Ind., en route to Camp Douglas, Wis.

Boyer, Perry L., capt., granted 30 days' leave of absence on surgeon's certificate of disability, with permission to apply for 15 days' extension.

Barney, Charles N., major, assigned to duty as inspector-instructor at encampment of Connecticut Militia at Niantic, Conn., July 18 to 23, 1910.

Patterson, R. F., dental surgeon, reported for duty at Fort Sheridan, Ill.

Knox, Howard A., lieut., left Fort Hancock, N. J., with the 10th Cavalry, en route to Camp of Instruction, Pine Camp, N. Y.

Edger, B. H., Jr., major, left Fort Meade, S. D., en route to Fort D. A. Russell Target and Maneuver Reservation.

Reynolds, C. R., major, left Washington Barracks, D. C., en route to Camp at Gettysburg, Pa.

Stuckey, H. W., M. R. C., to return to station Fort Hamilton, N. Y., on return of Captain William L. Little, Medical Corps, to Fort Adams, R. I.

Sherwood, John W., M. R. C., ordered to proceed from Fort Williams, Me., to Fort Banks, Mass., for temporary duty.

Ashburn, P. M., major, will report to commanding general, Department of California, for assignment to duty at the camp of instruction at Atascadero, Cal.

Wolfe, Edwin P., major, will repair to this city for consultation with the Surgeon General of the Army.

Whitney, Walter, M. R. C., relieved from Fort McPherson, Ga., and ordered to Fort Egbert, Alaska, relieving Captain Alexander Murray, Medical Corps.

Murray, Alexander, capt., on being relieved from duty at Fort Egbert, Alaska, proceed to Seattle, Wash., and report by telegraph to The Adjutant General of the Army for further orders.

Smith, L. L., capt., relieved from duty, West Point, N. Y., and ordered to Army Medical School, Washington, D. C., for a special course of instruction.

Richards, Robert L., capt., relieved from special course of instruction at the Army Medical School, Washington, D. C., and ordered to New York City, for duty as attending surgeon.

DeLaney, M. A., capt., granted 2 months' leave of absence.

Marietta, S. H., M. R. C., left Fort Des Moines, Iowa, with Troops C and D, 6th Cavalry, on detached service.

Scott, Minot E., dental surgeon, returned to Vancouver Barracks from temporary duty at Fort Lawton, Washington.

Stuckey, H. W., M. R. C., reports from temporary duty at Fort Adams, R. I., to detached duty with troops from post in camp at Fort Wetherill, R. I.

Wing, Franklin F., dental surgeon, left Fort D. A. Russell, Wyo., on 1 month and 20 days' leave of absence.

Harris, J. R., capt., returned to Fort George Wright, Wash., from treatment at Army General Hospital, San Francisco.

Casaday, George H., dental surgeon, reports for temporary duty at Fort Baker, Cal.

Harris, Herbert I., M. R. C., Now at Gettysburg, Pa., will report in person to the commanding officer of the camp of instruction at that place for temporary duty, and on the completion thereof will revert to a status of absence with leave.

Hathaway, L. M., capt., ordered to proceed from San Francisco, to the Presidio of Monterey, Cal., for station and duty.

Medical Corps, U. S. Navy

Changes for the week ended July 9, 1910:

Seaman, William, P. A. surgeon, from awaiting orders to duty at the Naval Recruiting Station, New York.

Geiger, Albert J., P. A. surgeon, from duty at the Navy Yard, Mare Island, and such other duties as may have been assigned him, to duty at the Naval Hospital, Mare Island, Cal.

Camerer, Clyde B., asst.-surgeon, from duty at the Naval Hospital, Norfolk, Va., to duty at the Naval Hospital, Las Animas, Colo.

Bloedorn, Walter A., asst.-surgeon, from duty at the Naval Hospital, Las Animas, Colo., granted 2 weeks' leave. On the completion of this leave, to temporary duty at the Navy Yard, Mare Island Cal.

Miscellany

Report on Drunkenness in Massachusetts.—In 1909 the legislature of Massachusetts authorized the trustees of the Foxborough State Hospital for Inebriates to investigate the subject of the treatment of drunkenness in Massachusetts, including the classification of inebriates, proper equipment for their treatment, the subsequent care of discharged patients and inmates and the opportunity for the cooperation of private citizens. The report, prepared under the direction of the trustees by James Ford, Ph.D., instructor in the department of social ethics of Harvard University, and published as a state document, is a pamphlet of 70 pages. Its preparation has involved a careful study, chiefly from printed data, of the public treatment of inebriety in this country and Europe. The report gives statistics of drunkenness in Massachusetts in 1908, defines drunkenness, discusses types of cases, court procedure and disposition of cases, giving figures, and comments on defects in present criminal procedure as follows: Release, which is an excellent and proper disposition for first offenders and the accidental drunkard, has been applied to old offenders on account of a lack of a central record bureau of cases in all courts, and occasional drunkards have been allowed through neglect to develop confirmed inebriety and become burdens on the state. Probation was applied to less than one-tenth of all offenders though over one-third of all those sentenced were released. Probation should have been applied in more cases, but the number of probation officers is too small to permit of the extension of this feature. The fine is usually open to serious objection because it is imposed at a time when the prisoner has no money to pay, and hence falls on his family or friends; the prisoner himself does not bear the penalty. Imprisonment for non-payment of fine is unjust both to the prisoner and to the state. It defeats the intention of the judge to punish, while it doubly penalizes the man. Suspended sentence, permitting payment of fine while on probation, is a great saving to the state, both in fines collected and in homes protected. Imprisonment for drunkenness too often fails as a correctional measure. The prisoner's family suffer a penalty because they lose the man's wages. The incarceration costs the prisoner his employment, which was his chief claim to respect, and he finds it difficult to obtain work on his release. The children of a prisoner are looked at suspiciously for signs of evil inheritance. The Foxborough State Hospital is intended for young persons concerning whom there is a good prognosis; it receives inebriates and drug habitués on voluntary submission to treatment, under conditions prescribed by the acts of 1909, and on commitment on application of relatives or others. It has been found unwise to retain patients incapable of cure, as they create an undesirable workhouse atmosphere. Treatment relies largely on the building effect of pure air, good food, abstinence from alcohol and drugs, regular hours and out-of-door skilled labor. Medicine is given where needed. But this is not sufficient to cure the pathologic inebriate, and the education of the will is one of the objects sought, supplemented by various environmental conditions and oversight after leaving the institution. Recommendations are made as follows: The statutes should be so modified that imprisonment for non-payment of fine be abolished and suspended sentence substituted, permitting the fine to be earned and paid to a probation officer. Probation is essential in the early career of drunkards and it should be applied to a larger proportion of cases. Institution treatment should provide for ample and flexible equipment for the different types of drunkard. For certain types of occasional drunkard short sentences to the house of correction is the proper course. In vicious, vagrant and criminal cases, indeterminate sentence to the farm is urged. For the treatment of the non-criminal habitual inebriates, a hospital for curable cases and a farm colony for incurables are needed.

The Control of Scarlet Fever.—The control of scarlet fever in a community, so far as our present knowledge allows us to proceed, means the control of seasonal prevalence, the limitation of occasional outbreaks and the destruction of endemic or sporadic foci (Crookshank, *Proc. Roy. Med. Soc.*, February, 1910). We cannot learn the natural history of scarlet fever either in the hospital or the laboratory. The bacteriologist or the superintendent of a hospital is no greater authority on the natural history of the disease than is a keeper at the Zoo on the habits of the tiger in his jungle. In studying scarlet fever in the natural state in epidemics in Ireland, Graves formulated the axiom that "a constitutional affection, produced by morbid animal or vegetable poisons, may display its evidence by only one or two of the numerous symptoms which usually accompany it," and this character appears to have been noted chiefly in connection with epidemics. The statistical tables almost invariably show that outbreaks of any magnitude (other than those due to milk) run for about eight months, and the period of greatest activity is always about six weeks. We have been taught that scarlet fever always breeds true; that a case at the present day is in direct descent from the first case that ever existed; that epidemics are due to neglect of sanitary precautions, and that epidemics come to an end after a process known as stamping out. There is also another belief that they come to an end through exhaustion of the soil. The soil varies, and "exposure to infection" is not a fixed quantity and cannot easily be defined. Does not the effective potency of the virus to produce certain specific effects vary? The classical experiments of Pasteur with rabies and chicken cholera prove that it does. Crookshank has never known the virus from a typical case of scarlet fever after passage through two removes to reproduce in a fourth case the typical symptoms. An exception is seen, apparently, in isolation hospitals, but here the experiment is not a pure one, and a return case is not necessarily a return of the original virus, but may be another strain of the same virus carried by an imperfectly immunized patient. It is a clinical observation also that a process of intensification occurs. One child in a family has sore throat, but no rash, no peeling, and little fever. Another child a week or two later has a sore throat, greater fever and a peeling tongue. A third child develops a typical case. Such a series frequently occurs at the beginning of an outbreak. Is it not a fair deduction that epidemics of scarlet fever (except milk outbreaks) follow the intensification of a virus by passage through the bodies of responsive persons, and that they terminate after attenuation by passage through a further series of bodies? Crookshank believes there can be no doubt of it, and that a series from its first manifestation to its disappearance usually consists of about six cases, of which the third and fourth are commonly the most typical and most severe. The normal cycle of epidemic scarlet fever does not extend beyond a sequence of six cases. He thinks that this is a far more reasonable explanation than is the alleged termination from exhaustion of the number of susceptible persons. Notwithstanding this he believes that the removal of scarlet fever patients to isolation hospitals reduces the incidence of the disease, and is about the best thing for the average citizen as it insures him against expense in case his household becomes stricken and safeguards him against business or professional loss.

The Treatment of Facial Neuralgia by Local Injections.—As opposed to radical operations, A. Sicard of Paris (*Proc. Internat. Med. Cong.*, Budapest, 1909) strongly advocates the treatment of facial neuralgia by means of local injections (alcohol, etc.). He describes the technic of injection in the various forms of facial neuralgia, gives his results in 168 cases so treated and a short historical sketch of the development of the treatment of facial neuralgia by local injection. Two distinct types of facial neuralgia are described; a neuralgia facialis essentialis and a secondary facial neuralgia. The neuralgia facialis essentialis may be attributed (in agreement with Bissaud) to a narrowness of the foramina at the base of the skull through which the sensory nerve branches pass, and is more often found on the right side; the secondary neuralgia may be due to either peripheral or general causes. The neuralgia essentialis seldom affects all three branches of the nerve. The paroxysms are, however, very severe; local myoclonia, a strong hyperemia of the skin, an overflow of tears, and a hypersecretion of the esophageal glands often result. It is easy to distinguish this paralysis from unilateral

frontal migraine. In treatment by the injection method the chances of serious complications are small. Large temporary hematomas may arise around the point of injection. To be certain that the treatment is successful it becomes necessary only to establish a persistent anesthesia in the skin or mucous membrane of the area supplied by the affected and injected nerve branch. In cases of myoclonia Sicard likewise found it sufficient to inject with alcohol the peripheral branches of the motor facial nerve. In all the 168 cases of facial neuralgia so treated beneficial results are reported. Relief was also afforded in one case in which the Gasserian ganglion was injected directly with alcohol through the foramen ovale. For injection Sicard used a very fine platinum needle 4 to 6 cm. in length. The skin was anesthetized with a 1 per cent. solution of stovain. For injection fluid 80 per cent. alcohol with or without the addition of stovain, but never mixed with chloroform, was most generally employed. Good results were also obtained by using the following solution for injection: 50 c.c. of 80 per cent. alcohol, 1 gm. menthol and 50 gm. novocain. [NOTE: Those who wish to look this subject up further will be interested in the articles by Patrick in THE JOURNAL, Nov. 9, 1907, xlix, 1567, and Dec. 11, 1909, liii, 1987, and by Hecht in THE JOURNAL, Nov. 9, 1907, xlix, 1574.]

Tuberculin in Progressive Paralysis.—In the face of the great skepticism which exists among the majority of the medical profession regarding the curability of progressive paralysis, Jauregg von Wagner (*Proc. Internat. Med. Cong.* in Budapest, 1909) reports many cases of apparent cures by means of the injection of tuberculin or by a combination of tuberculin injection and antiluetic treatment (mercury, iodids, etc.). The reported results are, moreover, not in accord with those obtained by Ziehen, Kraepelin, Krafft-Ebing and Obersteiner. Wagner began experimental work in 1891 to obtain evidence of the possible therapeutic worth of tuberculin in paralysis and to perfect the technic of treatment. In 1900 a great many paralytic patients, taken as they came and without choice, were injected with tuberculin. The results were throughout beneficial. There were noted pronounced remissions of very long durations, and it is claimed that the patients who received the injections of tuberculin, as far as could be made out, lived longer than those who did not receive this treatment. Among the patients in his own private practice (where one as a rule gets them in an earlier stage) Wagner says the cures and remissions were even more pronounced. The proper dosage of tuberculin for such treatment ranges from 0.01 c.c. to 0.1 c.c. and is to be regulated according to the condition of the patient. A uniform dose of 0.5 c.c. of tuberculin for a given series of patients was used, however, with good results, with intervals of two days, and the number of injections required by each patient was regulated by his own reactions. In most cases 7 to 12 injections were required. The increase in the dosage can be regulated by the degree of fever reaction. A fever reaction of as much as 39 C. is by all means to be avoided. After trying out a number of combinations of tuberculin injection with antiluetic treatment the course of treatment which gave the best results was determined to be the administration of iodids and mercury along with the tuberculin injection. For the general class of patients who are received at the hospitals in Vienna, this combination, as a routine treatment, proved to be more effective than the simple tuberculin injection. It was not uncommon to notice among the patients during treatment an increase in body weight (which in some cases amounted to several kilos) and other evidences of a general systemic improvement.

Health Supervision of the Public Schools of California.—In 1909 the legislature of California passed a law establishing health and development supervision in the public schools. According to George L. Leslie (*Psychological Clinic*, April, 1910) that law authorizes boards of education or school trustees to establish annual physical examinations of school children with a follow-up service to secure correction of defective development, to require physical examination of all candidates for teachers' positions to determine their vitality and efficiency, to adjust school activities to health and growth needs and development processes of pupils, to study mental retardation, to exercise expert sanitary supervision, to organize a corps of experts in physiology, hygiene and practical psychology who in cooperation with skilled physicians can diagnose defective growth and development. All matters pertaining to contagious or infectious diseases are left to boards of health, but close cooperation with boards of education is aimed at. The law is permissive, not mandatory. A skilled and careful examiner is not restricted, but is left free to uncover any and all causes which interfere with the health, growth and efficiency of pupils and teachers. California is the first state in the union to give legal recognition to this function of the skilled educator. Under this law departments of health have been established at Los Angeles, Pasadena, Berkeley, Oakland, Pomona, Redlands, Hollywood, Monrovia and other cities. A special course of training for educators in the subjects indicated is now in preparation in the University of California; Stanford University is ready to give thorough training to those who wish to become examiners; and the State University of California has inaugurated an admirable course of lectures on school hygiene. The law was intentionally made permissive in order that an educational period should precede its compulsory enactment, which will undoubtedly follow.

Children Allowed to Become Tuberculous.—The Instructive Visiting Nurse Association of Baltimore, on Nov. 1, 1909, had on its visiting list 1,665 tuberculous patients, as reported by Ellen N. La Motte (*Journal of the Outdoor Life*, March, 1910). Of this number 165, or 10 per cent., were children of and under school age. They all had pulmonary tuberculosis, not bone or gland infection. Of these 165, 121, or 73 per cent., came from homes in which there was already tuberculosis, having contracted it probably either from their parents, grandparents, older brothers or sisters, or other relatives living with them, with whom they were in close daily contact. This cannot be scientifically proved, for all other possible sources of infection would have to be excluded, such as casual visitors, milk supply, street dust, etc., but that is the common-sense view of the source of the infection. The problem of prevention is a difficult one, as the disease is often transmitted through the sheer brute affection of the ignorant and selfish—through the sort of affection that feeds the child from the same spoon; that cuddles and pets it through coughing attacks; that puts it to bed to sleep with the sick person, and that is deaf and immovable before all arguments and expostulations. La Motte asks what the value is of an open-air school or of sanitarium treatment, if at the end we allow the child to return to suroundings in which it becomes reinfected. Of course in many instances a real desire to do the correct thing is handicapped by circumstances; but the results of intellectual and of physical inability to comply with the requirements of hygiene are the same. It is the infected home that is responsible for much tuberculosis.

Proposed Legislation in Holland to Restrict Criminal Abortion.—A letter from Holland in the *Wiener klinische Rundschau*, April 3, states that criminal abortion is practiced in that country to a horrifying extent and dozens of young women all over the country are losing their lives in consequence. The law hitherto in vogue requires proof that the fetus was alive at the time, which proof it is impossible to present, consequently criminal abortion has almost invariably escaped punishment. Only in a few cases in which the mother died was a conviction secured on the ground of malpractice. The proposed new bill imposes a penalty for treating a woman to induce abortion whether the intention was stated or not. The maximal penalty, 3 years in prison and a fine of 3,000 gulden, nearly $1,200, is increased by a third when the deed is done for money by a professional abortionist or a medical man. No exception is explicitly made for physicians, but the authorities are quoted as saying that no physician would ever be prosecuted for justified induction of abortion. The bill further provides penalties for advertising preventive measures, or offering them or praising them publicly or unsolicited; physicians have found that induced abortion is the next step when preventive measures have failed. The writer adds that certain misguided philanthropically-inclined propagandists are sending to each newly founded household and to each new mother, addresses where preventive measures can be obtained.

Medical Economics

THE LEAGUE FOR MEDICAL FREEDOM

One of the most encouraging signs of the times is the increasing interest taken in medical and health matters by the newspapers. As an example of good common sense in a lay journal, we quote the following:

"Benjamin Orange Flower, editor of the *Arena*—a periodical which someone characterized as 'having more writers than readers'—is president of the National League for Medical Freedom.

"Now this is a lovely name—just beautiful. But we read further, and discover that the object of the organization is to resist the steady encroachment on our liberties of the American Medical Association. Mr. Flower eloquently puts it: 'The real issue is * * * whether people are going to be allowed to choose their own medical creeds along with their religious and moral creeds, without interference, or whether we are going to have state medicine, as obnoxious as state religion would be.' The evidence of this dastardly conspiracy is the endeavor of the American Medical Association to help on the movement for a National Department of Health.

"Now we are not prepared to assert that it would be well to extend the already comprehensive range of federal activities to the extent which would be necessary in order to establish such a department; but we do desire to reassure Brother Flower and help him to sleep undisturbed by visions of a conspiracy on the part of the 'allopathic' doctors of the nation against his rights as an American citizen. A health department, if organized, would concern itself not with details of the practice of medicine, but with large matters of sanitation. The individual citizen would be left free, when stricken by fever, to take aconite 2nd, under the homeopathic banner, or sulph. quinin 10 gr., under the 'allopathic.' Or he might take fluidextract of calisaya with the eclectics, or a wet pack with the hydropaths, if it so pleased him to do.

"Materia medica and therapeutics vary with the schools. But there is just one pathology, just one histology, just one bacteriology, just one set of aseptic methods known to science. Homeopath and allopath—yes, and osteopath, for that matter—have one technic when it comes to disinfecting a house, cutting off a finger, opening and draining an abscess, or diagnosing a case of cholera, yellow fever or smallpox. The concerns of the public health are those on which all doctors agree. The service of the eminent men of different schools of medicine on boards of health in the western states ought to reassure Mr. Flower—and will, if he will look into the facts."

It is a pleasure to commend the discrimination shown by the *Republic*. Apparently, many editorial writers are unable to distinguish between public medicine and private practice. The fact that the regulation by the state or the federal government of water-supplies and food-products or the regulation and suppression of epidemics by general sanitary measures would not in any sense affect the personal relations of the individual and his physician has not as yet been thoroughly grasped, even by all of our legislators. For obvious reasons interested parties are endeavoring to confuse the issue. Such editorials as that of the *Republic* will go far to enlighten the general public and to define the issues involved.

State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: San Francisco, August 2. Sec., Dr. Charles L. Tisdale, 929 Butler Bldg., San Francisco.

NEBRASKA: State House, Lincoln, August 10-11. Sec., Dr. E. Arthur Carr, 141 S. 12th St., Lincoln.

Colorado April Report

Dr. S. D. VanMeter, secretary of the Colorado State Board of Medical Examiners reports the written examination held at Denver, April 5, 1910. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. Six candidates were examined, of whom 4 passed and 2 failed. Twenty-six candid. tes were registered on presentation of satisfactory credentials, including state licenses. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1909)	82.2
Michigan College of Medicine and Surgery	(1905)	81.4
Woman's Medical College of Pennsylvania	(1908)	83.7
Western Pennsylvania Medical College	(1904)	76

FAILED

University of Louisville	(1905)	65.4
Ensworth Medical College	(1908)	56.4

REGISTERED ON CREDENTIALS

College	Year Grad.	State Licenses
College of Physicians and Surgeons, Chicago	(1898)	Illinois
Rush Medical College	(1879) (1889) (1903) (1909)	Illinois; (1906) Montana; (1897) Iowa.
College of Physicians and Surgeons, Keokuk	(1901)	Wisconsin
University of Iowa, College of Medicine	(1875)	Iowa
Tulane University of Louisiana	(1895)	Louisiana (1905) Texas
Detroit College of Medicine	(1903)	New York
University of Michigan, College of Medicine	(1898)	Washington
University of Maryland	(1878)	Michigan
Central Medical College, St. Joseph	(1905)	Kansas
University Medical College, Kansas City	(1908)	Missouri
St. Louis University	(1909)	Missouri
Marion Sims College of Medicine	(1898)	Iowa
Washington University, St. Louis	(1902) (1909)	Missouri
Ensworth Central Medical College	(1907)	Kansas
Homeopathic Medical College of Missouri	(1884)	Iowa
Kansas City Homeopathic Medical College	(1891)	Missouri
Cleveland Homeopathic Medical College	(1898)	Penna.
Ohio Medical University	(1905)	Penna.
Jefferson Medical College	(1909)	Penna.

The following questions were asked:

ANATOMY

1. Describe the lower end of the humerus. 2. Describe the tibia. 3. Name the muscles inserted into the tendo Achillis and give the origin of each. 4. Give the origin, insertion and nerve supply of the following muscles: Biceps flexor cruris, tibialis anticus, extensor carpi ulnaris, serratus magnus and rectus abdominis. 5. Describe the knee-joint. 6. Describe the ulnar nerve and its branches and name the cervical nerves from which its fibers are derived. 7. Give a short description of the abdominal wall external to semilunar lines. 8. Name the muscles that move the eyeball and the action of each. 9. Give the relations of the right kidney. 10. Give the blood and nerve supply of the stomach.

PHYSIOLOGY

1. Define the mechanical processes of digestion. 2. Name the digestive ferments, giving the origin and functions of each. 3. Give the physical description of the blood, together with causes of its circulation. 4. Give the origin and function: (a) of the red blood cells; number per c.mm.; (b) of the leucocytes; number per c.mm.; (c) of the plasma; (d) of the lymph. 5. Describe the movements of blood corpuscles in the capillaries and explain the phenomena of diapedesis. 6. Name the organs of elimination and tell what is eliminated by each. 7. Describe the process of elimination of urine by the kidney, giving the amount per diem and constituents of normal urine. 8. Define respiration, its purpose and how accomplished. 9. Define a reflex arc. Give example. 10. Give the distribution and functions of the third and fifth cranial nerves.

CHEMISTRY

1. Define (a) physiologic chemistry; (b) pathologic chemistry. 2. Describe two methods of determining the specific gravity of urine. 3. State the source of (a) exotoxins; (b) endotoxins. 4. Define (a) metal; (b) acid; (c) base. 5. Give the formulas of the following: (a) Zinc oxid; (b) ferric chlorid; (c) sesquioxid of iron. 6. Define amphoteric reaction. 7. How would you determine the presence of free HCl? 8. (a) Define the different states of matter. (b) To which does Avogadro's law apply? 9. (a) What is the significance of indican in urine? (b) Explain a method for determining its presence. 10. Give chemical names of following formulas: (a) $KClO_3$; (b) $CHCl_3$; (c) HCl.

PATHOLOGY

1. Describe the bacillus of tuberculosis. 2. Discuss sarcoma of the kidney. 3. Give the pathology of the various forms of pericarditis. 4. Define: Opsonin, vaccine, opsonic index, *Spirochæta pallida*. 5. Give the pathology of leukemia. 6. What are the gross autopsy findings of a patient dead with mitral stenosis. 7. What is the morbid anatomy of acute pancreatitis? 8. What is the pathology of pneumothorax? 9. Discuss the various forms of arthritis. 10. What is the morbid anatomy of paralysis agitans?

SURGERY

1. Give the symptoms of traumatic shock. 2. Where does senile gangrene most often occur and what is the usual cause? 3. Give the causes, symptoms and prognosis of fracture of the patella. 4. Describe the method of examination of an injured hip. 5. Give the symptoms of hypertrophy of the prostate gland. 6. Give the etiology and symptoms of renal calculus. 7. Give the symptoms of tuberculous disease of the elbow-joint. 8. Give the differential diagnosis between an inguinal and femoral hernia. 9. Mention some of the connective-tissue tumors, including benign and malignant. 10. Give the symptoms of a T-fracture into the elbow-joint.

TOXICOLOGY

1. Define toxicology. 2. What is an overdose of chloral hydrate? 3. Give symptoms and treatment of overdose of chloral hydrate. 4. Give symptoms and treatment of overdose of lead acetate. 5. Describe postmortem appearance in death from lead acetate. 6. Give symptoms of poison by *Cocculus indicus*. 7. What do you understand by ptomain and ptomain poison? 8. Give symptoms and treatment of ptomain poison. 9. Define nerve poison. 10. Give symptoms and treatment of nerve poison.

SYMPTOMATOLOGY

1. Give differential diagnosis between chronic rheumatism, arthritis, deformans and gout. 2. Define, give cause, symptoms, diagnosis and prognosis of acute uremia. 3. Name five diagnostic symptoms by which you may differentiate between conjunctivitis and acute iritis. 4. Give some of the causes which lead to fatty degeneration of the heart. 5. Describe the various forms of epilepsy, giving

cause, diagnosis, symptoms and prognosis. 6. Define, give cause and symptoms of pyelitis. 7. Give symptoms of ulcerative endocarditis. 8. Give symptoms and changes in the blood in case of chlorosis. 9. Give etiology and symptoms of atrophic cirrhosis of the liver. 10. Give etiology and symptoms of puerperal eclampsia.

OBSTETRICS

1. Describe the uterus, its parts, cavity openings and structure. 2. What is (a) allantois, (b) amnion, (c) funis, (d) meconium? 3. What are the changes in the uterus that take place during pregnancy? 4. What is meant by abortion, miscarriage and premature labor? 5. What are the signs of pregnancy and how may they be classified? 6. What hygienic measures are necessary in a case of labor? 7. Describe the methods of resuscitation when a child is apparently stillborn. 8. How would you recognize the R. O. P. position? 9. What is placenta prævia and how and why does it occur? 10. What is the treatment of placenta prævia, before term and at full term?

West Virginia April Report

Dr. H. A. Barbee, secretary of the State Board of Health of West Virginia, reports the written examination held at Wheeling, April 12-14, 1910. The number of subjects examined in was 20; total number of questions asked, 120; percentage required to pass, 80. The total number of candidates examined was 22, of whom 17 passed and 5 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Louisville	(1908) 80; (1909)	88
University of Maryland	(1908)	89
Baltimore Medical College	(1906) 81; (1909)	80
College of P. & S., Baltimore	(1909) 87, 89,	91
Louisville and Hospital Medical College	(1908)	82
St. Louis College of Physicians and Surgeons	(1899)	88
University of Buffalo	(1891)	90
Woman's Medical College of Pennsylvania	(1909)	88
Western Pennsylvania Med. Coll.	(1908) 86; (1909)	86, 89
University of the South	(1909)	81
University of Virginia	(1908)	88

FAILED		
Louisville and Hospital Medical College	(1908)	78
University of Louisville	(1909)	65
Eclectic Medical Institute, Cincinnati	(1909)	73
Western Pennsylvania Medical College	(1909)	78
Meharry Medical College	(1908)	80*

* Fell below 60 in one or more branches.

The following questions were asked:

OBSTETRICS AND GYNECOLOGY

1. Describe puerperal mania. Give cause and prognosis. 2. Treatment for excessive vomiting in pregnancy. 3. What would you carry in your obstetrical bag? 4. Would you rupture membrane? If so, give cause, symptoms and treatment. 5. Give pathology, symptoms and etiology of septicemia. 6. Eclampsia: Treatment. 7. What would you do in case of postpartum hemorrhage? 8. Treat case of endometritis. 9. Treat case of vaginismus. 10. Treat case of fibroma of the uterus.

ANATOMY AND EMBRYOLOGY

1. Name the characteristics of mucous and serous membrane. 2. Describe Scarpa's triangle, giving contents and relations. 3. Locate the thoracic duct and indicate what portions of body are drained by it. 4. Give arterial supply of the rectum, naming the branches from which they arise. 5. Give brief outline of arrangement and plan of distribution of the sympathetic system. 6. Give superficial and deep origin, course and distribution of facial nerve. 7. Name, describe and make diagram of the bony pelvis, mentioning the peculiarity of the female. 8. How is the true chorion formed? 9. What changes occur in the vascular system at birth? 10. Describe Poupart's ligament and mention its surgical significance in the radical cure of inguinal hernia.

CHEMISTRY AND MEDICAL JURISPRUDENCE

1. Define chemical incompatibility in medicine. Give example. 2. How is HgCl formed? What is the danger of giving acid with it? 3. How is quantitative analysis of the diabetic urine made? 4. What is the quickest and most fatal poison, and is there an antidote? 5. In burning sulphur what is given off? How much should be used in a room 10 x 10 feet? 6. How would you determine organic matter in water? 7. What are ptomains? 8. Malpractice: Define it. What does plaintiff have to prove to recover damages? 9. Blood stains: How determine whether human or not? 10. What are the legal requirements in West Virginia to practice medicine?

SURGERY

1. Treatment for rattlesnake bite? 2. What is tetanus, cause and treatment? 3. What may an aneurism be mistaken for? 4. Prepare a quart of normal salt solution. 5. Give methods of controlling hemorrhage. 6. Treat fracture of the ribs. 7. How are wounds classified? 8. What are symptoms of shock, treatment? 9. What are the symptoms of appendicitis? 10. Give classification and treatment of burns.

PHYSIOLOGY AND HISTOLOGY

1. What is the mode of production of heat in the body? 2. What do you understand by blood pressure? 3. Define the terms metabolism, anabolism and catabolism. 4. How may the amount of urine be physiologically increased or diminished? 5. Describe physiology of hearing. 6. Describe the functions of the kidneys and name the products excreted. 7. Describe the normal heart sounds and explain cause of same. 8. How many different kinds of blood corpuscles in the human body, and what are their relative numbers in health? 9. How are cells produced? 10. Describe the structure of bone.

PRACTICE OF MEDICINE AND PEDIATRICS

1. Give symptoms and treatment of chlorosis, simple anemia and pernicious anemia. 2. Give symptoms and treatment of syphilis. When would you begin the administration of drugs? 3. Give cause, symptoms and treatment of neurasthenia. 4. Give symptoms and treatment of neuritis. 5. Give cause, symptoms and treatment of pericarditis. 6. Differentiate epilepsy from hysteria and treat each. 7. Give symptoms and treatment of lobar pneumonia; differentiate from bronchial pneumonia. 8. Give your treatment of asthma. 9. State in detail how you would modify cow's milk. 10. Give cause, symptoms and treatment of membranous laryngitis.

MATERIA MEDICA AND THERAPEUTICS

1. For what purposes are diuretics employed? 2. Describe the therapeutic uses of spartein and state the dose of the sulphate for hypodermic uses. 3. Give the indications for the use of corrosive sublimate internally. 4. What remedies are employed to correct anemic conditions and how are they used? 5. State the precautions which should ordinarily be observed in administering medicines by the hypodermic method. 6. Describe asafetida and outline the physiologic effects. 7. Outline the general treatment of acute articular rheumatism. Write a prescription containing at least two ingredients for an adult to relieve pain in acute articular rheumatism. 8. Why is atropin combined with morphin when the latter is administered? What is the dose of atropin when combined with morphin? 9. Write a prescription containing a sedative and an expectorant for a bronchial cough in a three-year-old child. 10. Define a mydriatic. Give three examples, with the dose for the local application in each case.

BACTERIOLOGY AND HYGIENE

1. What do you understand by pathogenic germs? 2. Give two methods of making bacteriologic diagnosis of diphtheria. 3. Define a toxin and an antitoxin. 4. What organisms may be found in a pleuritic effusion and state the significance of each. 5. Discuss water as a transmitter of disease-producing organisms, giving sources of pollution. 6. What are some of the most approved methods for the purification of water for domestic use? 7. Suggest preventive measures during a typhoid epidemic. 8. What are the sources of danger from a sanitary view in the use of public buildings and how may these dangers be lessened? 9. Give the prophylaxis of smallpox. 10. What can you say for and against the use of tobacco?

SPECIAL PRACTICE

1. Name the important physical signs of incipient pulmonary tuberculosis. 2. Make a physical examination of heart and blood vessels. 3. Diagnose and treat hypertrophic rhinitis. 4. Describe mouth breathing. Give cause and treatment. 5. Diagnose and treat ulcer of the cornea. 6. What is choked disc? Give most important cause and treatment. 7. Describe technic of laryngeal intubation. 8. Diagnose and treat foreign bodies in larynx. 9. Diagnose and treat paralysis of the seventh cranial nerve. 10. What symptoms follow a hemorrhage into the internal capsule?

Montana April Report

Dr. William C. Riddell, secretary of the Montana State Board of Medical Examiners, reports the written and oral examination held at Helena, April 5-7, 1910. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 48, of whom 38 passed and 10 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago	(1887)	75
Chicago College of Medicine and Surgery	(1908)	75.3
Chicago Homeopathic Medical College	(1897)	80.9
College of Physicians and Surgeons, Chicago (1904) 76.3; (1905) 78.9; (1906) 81.3, 81.7; (1907) 80.4; (1908) 80.5	(1909)	81.7
Rush Medical College	(1906)	78.3
Northwestern Univ. Med. School	(1906) 84.5; (1909)	81.9
Hospital College of Medicine, Louisville	(1901)	80.2
University of Louisville	(1906) 79.3; (1909)	84.4
Detroit College of Medicine	(1901)	78
University of Minnesota, College of Medicine (1902) 79.1; (1905) 76.5	(1906)	80.5
Barnes Medical College	(1898)	75.3
University Medical College, Kansas City	(1907)	75.3
Medico-Chirurgical College of Kansas City	(1903)	82.6
St. Louis University	(1909)	79.9
Creighton Medical College	(1909)	75.1
Columbia University, College of Physicians and Surgeons	(1908) 77.8; (1909)	83.1
Bellevue Hospital Medical College	(1887)	75
Medical College of Ohio	(1909)	77.1
Cleveland Homeopathic Medical College	(1908)	77.2
Woman's Medical College of Pennsylvania	(1908)	80
Jefferson Medical College	(1906)	79.3
Milwaukee Medical College	(1901)	78.4
Queen's University, Kingston, Ontario	(1905)	84.2
University of Toronto, Ontario	(1908)	83.5, 85.2
McGill University, Montreal, Quebec	(1900)	80.9
University of Glasgow, Scotland	(1899)	86.1

FAILED		
College of Physicians and Surgeons, Chicago	(1906)	63.8
Northwestern Univ. Med. School	(1899) 69.5; (1908)	72.7
Chicago College of Med. and Surg.	(1904) 68.5; (1908)	72.1
University of Kansas	(1909)	71.5
University of Louisville	(1894)	60.2
University of Minnesota, College of Medicine	(1902)	70.8
Kansas City Hahnemann Medical College	(1909)	72.1
Marion-Sims Beaumont Medical College	(1903)	62.4

Book Notices

PRACTICE OF OSTEOPATHY. Its Practical Application to the Various Diseases of the Human Body. By Charles H. Murray, A.B., Author of "Genuine Osteopathy," etc. Half Morocco. Price, $3.50. Cloth, $2.50. Pp. 338, with 107 illustrations. Elgin, Ill., 1909.

This book, written by one who signs himself "Charles H. Murray, A.B., B.D., D.O.," has apparently aroused consternation among the followers of "osteopathy," since the publisher's circular accompanying the book states that the osteopathic publications have made "vicious attacks" on it because "this book will teach medical doctors the practice of osteopathy and all that is best in mechanotherapy and they will be able to use it to great advantage." Quotations from a number of osteopathic publications are also given, characterizing the author as "Judas" and applying to him several other epithets almost as bad, if not as ancient.

Examination of the book fails to disclose any such startling characteristics. The first part consists of about one hundred illustrations representing various manipulations, the plates being accompanied with descriptive matter. The second part, which discusses disease and its treatment, is the application of the manipulations to various diseases. The sheet-anchor of the author in all doubtful cases is what he happily characterizes as a "general treatment." This is given when all other signs fail and when nothing else seems to be in order. It is also advised as the accompaniment of most of the special manipulations recommended.

A number of interesting statements appear, such as the following in relation to typhoid fever: "Osteopathic treatment may be administered with very gratifying results. If begun early, the fever may often be aborted. (See Nos. 61, 62, 32 and 53.) The spine may be gently sprung from the lower part to between the shoulders." In addition to this remarkable treatment, however, the author advises strict attention to diet and bathing.

Regarding malarial fever, Murray says that "marked bony lesions are found oftentimes in persons suffering from the disease and great improvement follows their correction." A "general treatment" seems to be indicated, although the use of quinin is also mentioned in the last paragraph.

Scarlet fever proves somewhat of a stumbling-block, since apparently a "general treatment" would not be of much value here. Numbers 5, 10, 13, 14, 51, 47, 50 and 53 are recommended. Practically the entire category is recommended for grip, probably advisedly. When the author gets to smallpox, however, he does not even attempt to advise "general treatment," but very carefully avoids the subject of treatment. Locomotor ataxia, paralysis agitans, neurasthenia, chorea, exophthalmic goiter, jaundice, arthritis deformans, diabetes and arteriosclerosis all yield apparently to a "general treatment." Even this system, however, is evidently lacking in some particulars, as the author does not make any recommendation at all regarding treatment in a number of diseases. Several interesting statements appear, such as the following: "The outlook in most cases presenting valvular difficulties (of the heart) is not favorable, yet a number of cases have been cured by osteopathic procedure." Just how, the author does not say, but hastens to qualify his statement: "At any rate, most cases may be benefited." In a number of instances, Murray has evidently reached the end of his tether and makes no attempt to suggest osteopathic methods of treatment, but frankly advises the best medical treatment of which he is aware.

If this book comprehends all the "revelations" which this osteopathic "Judas" has to make, the sacred cause of "osteopathy" would seem to have little to "reveal."

THE RELIGIO-MEDICAL MASQUERADE. A Complete Exposure of Christian Science. By Frederick W. Peabody, LL.B., of the Boston Bar. Cloth. Price, $1. Pp. 197. Hancock Press, Boston, 1910.

This little book presents concisely and forcibly the facts regarding Mrs. Eddy and her cult, which, under the name of "Christian Science," Mr. Peabody denounces as the "most shallow and sordid and wicked imposture of the ages." Mr. Peabody is a Boston attorney who represented the Arena Company in 1899 in the suit brought against that magazine for the publication of Mrs. Woodbury's article, as well as in the counter-suit of Mrs. Woodbury against Mrs. Eddy. He was also retained by Rev. Minot J. Savage and later by *McClure's Magazine* to make a legal investigation of the history of Eddyism and, finally, was one of the attorneys in the suit brought by Mrs. Eddy's two sons for the division of her estate. As the Massachusetts attorney in these various cases, he examined under oath many of Mrs. Eddy's most intimate friends as well as the highest officials of the "Christian Science" organization. His knowledge is therefore not based on hearsay or popular belief, but is the result of careful and accurate legal investigation.

Mr. Peabody explicitly states that he publishes his book with full knowledge of the responsibility which he assumes, and that he is willing to substantiate in any legal tribunal every statement which he makes. The significance of this will be realized on reading some extracts from the book: "As I understand her, Mrs. Eddy is the inventor and sole proprietor of the greatest get-rich-quick concern ever conceived. . . . Christian Science never cured any one of anything but imaginary illness; it never relieved any one of any real evil—but his money. Mrs. Eddy, boldly professing to have received a revelation from God, and to be the equal of Jesus Christ, has made upwards of a million and a half dollars out of her enterprise that she calls Christian Science, since she reached 60 years of age." "Christian Science is a 'skin game' and the powers that be in Christian Science are the inner circle of grafters." "Mrs. Eddy's miraculous cures are all frauds, every one of them. She never healed any one of any serious disease. She never in her life had any curative power whatever. . . . Her man, Alfred Farlow, the official, highly paid and carefully coached spokesman of her cult, and its leading press agent, admitted, in response to my questioning and when testifying recently under oath and subject to cross-examination, that he did not know of any cure having been made by Mrs. Eddy of any organic disease in her life, but stiff leg, and he said that in his understanding as a high practitioner of the Christian Science art of healing, a stiff leg is an organic disease."

Mr. Peabody's book is a merciless and unanswerable arraignment of the leaders of this cult.

INFECTIOUS DISEASES. A Practical Text-Book. By Claude Buchanan Ker, M.D., F.R.C.P. Medical Superintendent, City Hospital, Edinburgh. Cloth. Pp. 555, with 66 illustrations. Price, $7. London: Oxford University Press, 1909.

An extensive experience at the Edinburg City Hospital has enabled the author to speak knowingly concerning all except some of the rarer infectious diseases. He has aimed to make his book practical and has omitted, therefore, much concerning the etiology, bacteriology and pathology. Bibliographic references also are seldom given. The result is a text-book that is eminently suited to the needs of the practitioner—a book in which the emphasis is laid on diagnosis, prognosis and treatment. It must not be inferred, however, that pathology and bacteriology are overlooked. On the contrary, they are clearly discussed, though in a succinct rather than an exhaustive manner and with especial reference to the practical bearings of these topics. For instance, the bacterial side of diphtheria and cerebrospinal meningitis is excellently handled, with minute directions as to the diagnostic help that comes from the early identification of the organisms in a given case of illness. Excellent plates show the appearance of the stained micro-organisms. In fact, one may say that all the numerous plates and charts in the book are unusually well executed and are especially serviceable in illustrating the rashes of the eruptive diseases or the organisms of the infections.

Dr. Ker is a believer in the old-fashioned methods of diagnosis by means of the history and by physical examination; by a study of tongue, pulse, facies, course of temperature, characteristics of the rash, etc. He does not, however, neglect the laboratory side; he discusses fully the value of blood-counts in the various diseases—for instance, leukopenia in typhoid, lymphocytosis in whooping-cough, the importance of lumbar puncture, serum reactions, a study of the urine, etc. But all this is done in such a well-balanced manner that the reader feels confidence in the author as one whose theoretical

knowledge has been prevented from running into extravagant channels by the logic of a judicial mind and the curb of bedside experience. The laboratory and bedside experiences are, as they should be, closely correlated.

The title of the book is, in a sense, a misnomer, for only some of the infectious diseases are discussed. There are considered only those diseases treated at the Edinburg City Hospital. Many diseases commonly classed as infectious are omitted; for instance, those due to animal parasites as malaria, ambeic dysentery, trichiniasis and others. Pneumonia, tuberculosis, syphilis, yellow fever, rheumatism, tetanus, cholera, septicemia, are not included.

The book is beautifully printed, well bound, and is one that can be recommended to the general practitioner as a safe, sane and up-to-date guide.

THE OPTIC NERVE AND THE ACCESSORY SINUSES OF THE NOSE. A Contribution to the Study of Canalicular Neuritis and Atrophy of the Optic Nerve of Nasal Origin. By Prof. A. Onodi of the University of Budapest, Member of the Hungarian Academy of Sciences. Authorized Translation by J. Luckhoff, M.D. Cloth. Price, $3.50 net. Pp. 101, with 50 illustrations. New York: William Wood & Co., 1910.

The results of ten years of study by the author of the anatomy of the nasal accessory sinuses and their relations to the optic nerves are summed up in this book. The first part treats of topographic anatomy and considers the numerous variations in position and size of the ethmoidal cells and the sphenoidal sinuses in their relation to the optic canal. These variations are arranged arbitrarily in twelve groups, each of which has some distinguishing features. Each group is well described and beautifully illustrated by reproductions of photographs (natural size) of specimens hardened in formaldehyd solution and so sectioned as to be very instructive. This English edition contains nearly twice as many illustrations as appeared in the German edition of 1906.

The second part deals with clinical considerations of the subject. While it is admitted that the pathologic data to prove the production of visual disturbance by sinus disease are deficient, the author thinks that we are warranted in drawing conclusions from the clinical evidence at hand, and this he presents rather extensively. That disease of the accessory sinuses of the nose may at times cause optic neuritis either by direct extension of an inflammatory process or by some toxic influence can hardly be doubted, but that this is any more than an infrequent occurrence can hardly be accepted. The subject is one of especial interest to the ophthalmologist and rhinologist, to whom this book will be attractive.

THE CARE OF THE CHILD. By Mrs. Burton Chance. Cloth. Price, $1. Pp. 242, with illustrations. Philadelphia: The Penn Publishing Co., 1909.

The author states in the preface that this book is not intended to take the place of medical advice, but to help the inexperienced mother in the little things which are so important in the child's daily life. This idea is carried out; the teaching is practical and the language simple. The chapter on artificial feeding is good; and the necessity for strict cleanliness of all bottles and utensils used is emphasized. The proper care of the child in the simple disturbances of childhood is described, and the administration of "patent medicines" is condemned. Nursing in contagious diseases is discussed briefly. The upbringing of the child, apart from the physical development, is gone into at some length, and the necessity for absolute truthfulness on the part of the parents is emphasized. The book is to be commended and might be read with profit by all parents.

THE SEXUAL LIFE OF WOMAN IN ITS PHYSIOLOGICAL, PATHOLOGICAL AND HYGIENIC ASPECTS. By E. Heinrich Kisch, M.D., Professor of the German Medical Faculty of the University of Prague. Only Authorized Translation into the English Language from the German by M. Eden Paul, M.D. Cloth. Price, $5. Pp. 686, with 97 illustrations. New York: Rebman Company [1910].

This is another of the numerous books along this line which have appeared in the last few years. Apparently, the subject has been fully covered already and the need of further work thereon is not apparent. Dr. Kisch has assembled a large amount of matter, consisting mainly of references to the works of others. Those desiring a summary of authorities on this subject can find it in this volume.

Medicolegal

Learning, Skill, Judgment and Care Required of Surgeons—Limit to Responsibility in Injured Limbs—Admissibility of Skiagraph Taken Years After Accident

The Supreme Court of Colorado says that, according to the testimony in Bonnet vs. Foote (107 Pac. R. 252), a malpractice case brought by the latter party, the plaintiff fell on the sidewalk in the evening, was removed at once to her room, and had the defendant called. He arrived within a few minutes, found that she was suffering severe pain, and told her that he was afraid she had suffered a fracture, but that he would not make an examination until morning. The next morning he called, examined her hip by feeling it with his hands and concluded that the injury was a severe bruise, not a fracture. It further appeared that he called and treated her twice a day for about two weeks, then once a day for about a month, and after that occasionally for about two months, as for a bruise. He made frequent examinations of the injured limb and measurements for the purpose of ascertaining whether or not it was shortening, but at no time regarded the injury as anything more than a severe bruise. The plaintiff was confined to her bed for about four weeks. At the end of that time she was able to sit up a short time each day, gradually increasing it. In a few weeks she was able to walk with crutches, and used crutches or a crutch and a cane for about 18 months after her injury, and then a cane only. She suffered more or less pain for something like two years, at the end of which time it passed away, but occasionally would return. It also appeared from the testimony that the injured limb was shortened, that it was not as strong as before the injury, and that she could not use it with the same degree of facility she could before it was injured.

A physician and surgeon called on behalf of the plaintiff testified that about five years after her injury he made an examination of her right limb and found from such examination, aided by an *x*-ray photograph of her right hip, that she had sustained a fracture of the neck of the femur of the right limb. He also detailed the method usually adopted by surgeons for the purpose of ascertaining whether or not when the hip is injured a fracture exists, while from the testimony it appeared that the defendant did not adopt that method or do anything more in the way of examining the injured limb than already stated.

In the absence of a special contract, the law implies that a surgeon employed to treat an injury contracts with his patient, first, that he possesses that reasonable degree of learning and skill which is ordinarily possessed by others of the profession; second, that he will use reasonable and ordinary care and diligence in the exercise of his skill and the application of his knowledge to accomplish the purpose for which he is employed; and, third, that he will use his best judgment in the application of his skill in deciding on the nature of the injury and the best mode of treatment. He is not responsible for want of success unless it results from a failure to exercise ordinary care or from want of ordinary skill. And, if he possesses ordinary skill and exercises ordinary care in applying it, he is not responsible for a mistake of judgment.

Applying these well-settled principles of law governing the liability of surgeons, it is at once apparent from the facts that the failure of the defendant to properly diagnose and treat the injury to the plaintiff's hip was inexcusable. That the bone was fractured cannot be doubted. The evidence of such fracture was plain from the fact that the plaintiff's foot lay over on one side, to which the attention of the defendant was directed, so that one of two conclusions is inevitable: Either the defendant did not possess that degree of learning and skill which the law requires of surgeons; or, if he did, he failed to exercise ordinary care in applying it.

It was urged that the court erred in admitting the evidence of the physician above referred to, for the reason that his examination of the plaintiff was made some five years after the injury, and that the condition of the injured limb at that

time was not competent to prove that it was the result of the defendant's treatment, or failure to properly diagnose her injury. Unskillfulness cannot be established by proof of the result of treatment alone. Improper treatment must be shown by other evidence. But this rule was satisfied in this case. There was other testimony with respect to the condition of the limb shortly after the injury and during the period the defendant was treating it, which at least tended to prove that the bone had been fractured, and the testimony of the physician to the effect that from his examination he found that it had been fractured was competent as tending to corroborate the testimony on the part of the plaintiff that its condition after the injury was such as would be caused by a fracture.

Moreover, the court does not agree with the contention that it was error to admit in evidence the photograph of the injured limb, the "skiagraph" as it was termed, for the reason that it was taken several years after the accident. That it was taken long after the injury would be proper to be considered in determining the weight which should be given it; but that would not affect its competency.

Nor does the court accept the view that it was error to admit testimony of the shortness of the injured limb. A surgeon is required only to restore an injured limb to that degree of perfection which would result from the exercise of that degree of skill in treating the injury which is ordinarily possessed by members of the profession. As previously stated, a surgeon is not responsible for want of success unless it is the result of a failure to exercise ordinary care. Neither is he responsible for a mistake of judgment if he possesses ordinary skill and uses reasonable care in exercising it. The fact that an injured limb is defective after the patient has recovered is proper to be considered in an action for malpractice, although it is not prima facie evidence of negligence of the surgeon treating it, or, as some authorities state in substance, the mere fact that an injured limb is imperfectly healed does not of itself establish that the surgeon treating it was guilty of negligence. However, neither of these rules of law in the circumstances of this case rendered the evidence under consideration incompetent. The claim of the plaintiff, and as the evidence established, was that the defendant did not treat her for a fractured bone, but for a severe bruise, and that he improperly diagnosed her injury. The bone was fractured. From the evidence it appeared that the defendant should have discovered this fact. So that the result which would follow his failure to properly diagnose and treat the injury was competent for the purpose of establishing the damages sustained.

A judgment for the plaintiff for $1,500 affirmed.

Validity of Information and Admission of Evidence as to Use of "M.D.," Etc.

The Supreme Court of Washington says, in State vs. Hanover (107 Pac. R. 388), that its former decision in that case P (reported in 104 Pac. R. 624, and in the Medicolegal Department of THE JOURNAL, February 26, 1910, on page 738), was wrong. There was no appearance by the state. It was urged by the defendant that the statute under which he was informed against, namely, section 8, page 119, of the session laws of 1889-90, had been repealed between the date when the offense was charged to have been committed and the date of the trial, by an act of the Legislature regulating the practice of medicine and surgery, which, by reason of an emergency clause, took effect March 18, 1909, which was before the trial and conviction of the defendant. This court took that view of the law, and the judgment of the lower court was reversed. But chapter 6 of the session laws of 1901 was not called to the attention of the court, and was inadvertently omitted from consideration. On the occurrence of that statute to the minds of the court, on its own motion, it set the case for a rehearing and called on the attorney general to appear in behalf of the state, which he did by both brief and oral argument. The provision above referred to is that: "No offense committed and no penalty or forfeiture incurred previous to the time when any statutory provision shall be repealed, whether such repeal be express or implied, shall be affected by such repeal, unless a contrary intention is expressly declared in the repealing act, and no prosecution for any offense or for the recovery of any penalty or forfeiture, pending at the time any statutory provision shall be repealed, whether such repeal be express or implied, shall be affected by such repeal," etc. This act being constitutional, it must be seen that the former opinion of the court was wrong on the point on which it was based, and it therefore becomes the plain duty of the court to reverse its former decision so far as it was based on the proposition discussed therein.

The defendant urged, however, that his conviction should be reversed because it was alleged there were two forms of offense proven; that the testimony as to the use of the letters "M.D.," and certain other indicia of practice should have been excluded, and that the requirement of the statute that the indictment or information must charge but one crime, and in one form only, except in certain instances, had been violated. But the information showed that there was no attempt to charge more than one crime. The substantive charge was practicing medicine without a license, and these other matters that were introduced were simply evidentiary, tending to prove the commission of the substantive charge. Even if it should be conceded that they were immaterial, the testimony would be harmless, for the defendant openly confessed that he had no license, and positively declared that he would not comply with the requirements of the medical board, because he did not deem them just. It seems plain from the whole record that the judgment of conviction should be affirmed, and it is so ordered.

Society Proceedings

CONNECTICUT STATE MEDICAL SOCIETY

One Hundred and Eighteenth Annual Meeting, held at New Haven, May 25-26, 1910

Officers Elected

The following officers were elected to serve for the ensuing year: President, Dr. Frank K. Hallock, Cromwell; vice-presidents, Drs. Edmund P. Douglass, Groton, and E. T. Bradstreet, Meriden; secretary, Dr. Walter R. Steiner, Hartford (re-elected); treasurer, Dr. Joseph H. Townsend, New Haven.

The society will meet next year at Hartford, May 24-25, 1911.

Diagnosis of Insanity

DR. J. M. KENISTON, Middletown: To determine the existence of insanity or a psychosis, the examiner should pursue a systematic course. Hence, he should get as complete a history as possible. He should first find out just what the patient sees and hears or feels or smells, and whether things are really what they seem to him. Disturbances of memory are next to be noted. Disturbances of the train of thought may be exhibited and noted during the tests of perception, apperception and memory. Judgment is the loftiest and most complicated of the mental faculties. One can test the patient's judgment in a general way by submitting to him various problems concerning proper conduct, morality, business, etc. It is not enough to know whether he knows right from wrong, and the nature of a criminal act. We should ascertain whether he has lost, wholly or in part, the finer feelings that modern civilization has evolved and society demands. The full fruition of volition depends immediately on an antecedent idea. Acts performed without a definite idea are not volitional, but reflex. The above details help us to determine the general conduct and show its deviation not only from the patient's norm, but from the standard imposed to-day by society. When the general practitioner has obtained possession of all these facts and arranged his material, he will be in a position to demonstrate to the proper authorities or to his confrères or to the friends of the patient the existence of insanity. At the Connecticut Hospital for the Insane, up to Oct. 1, 1908, 12,823 patients were committed; and 97 of these, or 0.75 per cent., were diagnosed not insane. In these 97 cases, a temporary disturbance was mistaken for a more permanent derangement.

DISCUSSION

DR. M. MAILHOUSE, New Haven: If the physician will but bear in mind that dementia paralytica often begins with neurasthenic symptoms, and will always make his diagnosis by the process of exclusion, he cannot go wrong. In those in whom there may be a doubt as to whether the trouble is insanity or crime, it is of the highest importance to determine whether the conduct and character deviate from their own norm, as well as from the standard imposed to-day by society. To determine this point, it is necessary to question not only the patient's nearest relatives, friends and associates, but also those absolutely disinterested. The statement of the large percentage of transitory mental disturbances that have appeared in the State Hospital for the Insane seems to me to be a strong argument for the establishment of psychopathic wards in general hospitals.

DR. W. E. FISHER, Middletown: Despite the fact that we all recognize that the question of the mental health of a community and its preservation are of vital importance, I have knowledge of only one medical college that affords instruction in psychiatry and makes it a part of the curriculum. It would hardly seem necessary to emphasize the necessity of more active cooperation between the alienist and the general practitioner, were there not abundant evidence of a lack of community of interests. It is no less possible to group symptoms of the different psychoses so as to afford typical clinical pictures than it is to group the symptoms of a respiratory or cardiac disease. Much of the difficulty formerly experienced in obtaining clinical pictures of the different psychoses was due to the inadequacy of the methods pursued in restricting the study of the disease to the minute analysis of symptoms at some given period, instead of studying the entire course of the disease. Guard against falling into the habit of seizing on certain symptoms, ignoring others and making the clinical picture fit some arbitrarily constructed frame.

DR. GEORGE N. LAWSON, Middle Haddam: I understood Dr. Keniston to say that a man is really responsible for his crimes, very often, even though insane. It seems to me that the family physician is in a position to say more readily than a stranger whether the patient is insane or not, whether he has passed from his own norm and the recognized standards of the day. He can be of great assistance to the staff physicians at the hospital, if he will write up the history and give it to these physicians, along with the certificate of insanity.

Instructions to Patients Suffering from Specific Urethritis.

DR. P. D. LITTLEJOHN, New Haven: In order to overcome the difficulty of not having my instructions accurately followed by patients, I have prepared some leaflets containing careful directions. I have tried to make the statements contained in them as terse and as clear as possible, and at the same time emphatic. Gonorrhea is not the slight complaint that many consider it. Alcohol must be strictly avoided. Exercise should be taken, but all forms of violent exertion should be avoided. A careful cleansing of the nails and hands is imperative after the gauze dressing is handled. All infected persons should sleep alone, if possible, and all toilet articles must be for their own exclusive use. Particular attention should be given to the alimentary tract, in order to avoid constipation. Few realize the value of drinking large quantities of water and the free urination which this causes. Patients in the acute stage must have a milk diet, so far as possible; and as the disease improves, the diet may be increased. The patient should be cautioned to keep reasonably quiet after the day's occupation is finished. The proper technic in the use of the hand injection should be properly explained. Though I believe that we can cure all patients with anterior infection and am optimistic regarding the chronic cases, provided the directions are fully followed for as long a time as necessary, I also believe that cases so treated will not infect other people; yet until all the gonococci can be proved to have disappeared, we are scarcely justified in making a positive statement to that effect when matrimony is contemplated.

DISCUSSION

DR. F. H. COOPS, Bridgeport: Dr. Littlejohn's plan of putting into the hands of the patient printed slips describing the points of the home treatment of gonorrhea, I have been carried out with splendid results. For some time I have been thinking of getting out such a set of printed instructions, and I shall copy the set presented, making a few changes to suit my individual fancies. The instruction: "You should drink all the water possible," I should have put in bold type, for instance. When the urethra is washed out every half hour, not enough discharge accumulates to require the use of any dressing at all. The request that the patient come to the office with a plentiful supply of urine in his bladder is of the utmost importance from a diagnostic and prognostic standpoint. I believe, too, that patients should be instructed as to the import of these various urethral shreds, etc. The disease, under the best of conditions is a difficult one to cure.

DR. C. S. STERN, Hartford: The total elimination of red meat would in some cases retard the cure by reducing the patient's resistance. A patient is much more likely to renew a small bit of cotton than a large piece of gauze. Unnecessary handling always increases and continues the local inflammation. I should add as a conclusion to the other instructions and in heavy type: "Don't stop treatment until you are completely cured."

DR. G. BLUMER, New Haven: It is now known that the white meats have rather more extractives than the red. If meat be stopped, it should be meat of all kinds.

DR. R. A. MCDONNELL, New Haven: I have been unable to satisfy myself that diet has any influence on gonorrhea after the acute part of the infection is over. I think that the drinking of water should be controlled during the latter part of the evening.

DR. LITTLEJOHN: I was aware that white meats have more extractives than red; but I knew that if my patients did not eat red meat, they would get very little meat of any kind. People with a recent infection, never having had any previous trouble of this kind, should be told what to avoid in the way of eating; in chronic cases it does not make nearly so much difference.

Management of Syphilis

DR. ALFRED G. NADLER, New Haven: I do not believe that syphilis is on the increase. Treatment should be commenced as soon as the diagnosis is made, which is usually at the first visit or very soon thereafter. The microscope will almost invariably make or confirm the diagnosis of chancre. The chancre should be excised, but the patient should be subsequently treated just as if this operation had not been attempted. Mercury may be given externally, internally and by injection. The internal administration should not be resorted to unless conditions prevent the use of inunctions or injections. Treatment by suppository is also inefficient. Administration by inhalation is one of the best methods. I have had no experience with intravenous injections. The advantages of intramuscular and subcutaneous injections are that there is greater regularity of treatment, the absorption is more certain, the stomach is left free for the reception of other medicines, there is less chance of stomatitis, the physical effect is more marked, and they are convenient for the patient. Pain may accompany the injections; and sometimes a deposit of mercury is left, which suddenly absorbs, producing poisonous symptoms. The intramuscular injection of insoluble salts produces a deposit which is slowly absorbed and slowly eliminated; when injected subcutaneously, the salts are absorbed and eliminated more rapidly, and should be used when a prolonged action is required; but the intramuscular injections have a more profound effect on the deeper manifestations of syphilis. The first two years of treatment is the most important period for the patient, but treatment should be actively pursued for at least five years. One should watch carefully for complications. I consider inunctions preferable to injections, and believe that it is better to treat too long than not to treat enough.

DISCUSSION

DR. R. A. MCDONNELL, New Haven: I always find it inconvenient to cut the chancre out, and one cannot promise the patient that cutting it out will do any good; so I do not see any advantage in insisting on it. I do not find it so easy to discover the spirochetes with the microscope as is indicated by the paper; so I am not able to make the diagnosis

by means of the microscope, although it can be done with proper technic. I am not sure that my inability to find the spirochete does not work to the advantage of the patient, as I believe that, unassisted, the system acquires a certain power of opposition to the disease as time goes on. It is well to let the patient go untreated for a time, even when the diagnosis is made. My preference is for the injection of an emulsion of metallic mercury, of which I have given over 1,000 injections, without untoward results. I have seen various late manifestations of the disease, and even total blindness, years after the infection, controlled after a few injections.

DR. THOMAS M. BULL, Naugatuck: Physicians should be more careful to diagnose syphilis. If one contagious case be left undiagnosed, an untold amount of harm may be done. Inasmuch as 99 per cent. of medicine is given by the mouth, and as this is the natural way for anything to enter the blood, I must confess to a predisposition for this method. There is little danger of irritating the digestive tract, if the patient is seen frequently and the dose graded carefully. Although the disease is capable of producing the most terrible consequences, I believe it to be the most easily treated of any of equal gravity. I should strongly advise any patient who has ever had syphilis to take a month's mixed treatment every year, whether symptoms have developed or not. The best treatment must be prophylactic.

DR. CHARLES C. BEACH, Hartford: In treating syphilis successfully, it is absolutely essential to make the diagnosis early. I presume that the ideal treatment is by injection or inhalation, but I never use either of these. We get sufficiently good results from the internal treatment by the mouth, and I have found no difficulty in giving the protoiodid. We are supposed to keep as professional secrets the names of those who suffer with syphilis, but I believe that cases of this disease should be reported with the same care as cases of scarlet fever or any other contagious disease.

DR. OLIVER C. SMITH, Hartford: The place for such patients is in the hospital, in bed on their backs. They have no right to go about disseminating the disease. We should try to educate the communities in which we practice concerning the great importance of these two terrible infections, gonorrhea and syphilis.

DR. RIENZI ROBINSON, Danielson: Does Dr. Nadler prefer mercurial treatment to the iodid for the tertiary manifestations of syphilis?

DR. C. S. STERN, Hartford: I do not believe that at present the Wassermann reaction has the same standing among physicians that it had a year ago. Either positive or negative, it is not to be depended on.

DR. PERCY D. LITTLEJOHN, New Haven: I thoroughly agree that gonorrheal patients are better off in the hospital, but one cannot keep syphilitic patients there.

DR. NADLER: The Wassermann reaction is not considered so valuable now as it was formerly. I mentioned in my paper that negative reactions do not indicate a cure of the disease. I should treat the tertiary manifestations with intramuscular injections of calomel, and give potassium iodid. I did not enter into the sociologic question at all. Chancre may be located when it can be conveniently removed; and in that case, its removal will eliminate a host of infecting agents. I think that the spirochete can be readily discovered under the microscope with the so-called dark-ground illumination.

Anatomy and Clinical Importance of the Subdeltoid Bursa

DR. P. P. SWETT, Hartford: Lesions of the subdeltoid bursa are more frequent than other lesions in this region, including fracture and tuberculosis of the shoulder. The old term, periarthritis of the shoulder, is not definite, and usually refers to subdeltoid bursitis. The exposed position and peculiar function of the bursa render it especially liable to inflammation. Although the vast majority of cases are best treated by excision of the bursa, there are many instances in which limitation of motion does not exist; and treatment of this class of cases by means of rest, massage and counterirritation is usually sufficient. A diagnosis of rheumatism, tuberculosis, paralysis, ankylosis or neuritis should not be made until the possiblity of subdeltoid bursitis has been excluded.

DISCUSSION

DR. E. W. ARNOLD, New Haven: The investigations regarding the subdeltoid bursa are the logical outcome of the investigations regarding the behavior of bursæ in general. The bursæ at the knee-joint inflame without cause. There are a certain number of cases in which no great trauma has been received, and repeated slight trauma from kneeling cannot be held responsible for the chronic inflammation of the patellar bursa. There must, then, be accepted the possibility that these bursæ partake of the same inflammations that the joint itself is liable to have. All infections leave the bursa permanently thickened; and such a bursa must be not only useless, but a great hindrance to the function of the joint. It should be removed, if the impediment to the joint is mainly due to the bursa. We all know that a good many cases will clear up under other treatment, however, than operative interference.

DR. A. G. COOK, Hartford: Here is a new bursa that must be reckoned with. All that is true of the other bursæ is true of this one. Fixation *per se* has never been proved to cause the inflammation of any bursa; but if the arm is fixed in such a position as to cause pressure, that pressure will be trauma. I have given prominence to this point, in order to show that we need not be afraid to fix any of these points, if necessary. There are times when an inflamed joint will do better at rest, and other times when irritation is desirable.

The Ideal Nose and Pharynx

DR. F. W. WILSON, Bridgeport: The amount of air passing through the nose and pharynx in a year must be reckoned in millions of cubic feet. An obstruction having almost no influence in a single inspiration may have great influence in a million inspirations. This is also true of nasal cavities that are too large. Laboratory experiments give expired air a much lower percentage of micro-organisms than inspired air, most of the organisms having been deposited on the moist mucous membrane of the nose and pharynx, and being subsequently blown on to the handkerchief or expectorated. The nose and pharynx might also be called the filtration apparatus of the air. These organisms rarely breed and do harm on a plane surface; they must have some hiding-place where they can lodge and multiply. The ideal nose and pharynx contains as few of these hiding-places as possible. We as physicians are not fully alive to the importance of the existence of small, unnecessary hiding-places and of their complete obliteration by surgical means.

DISCUSSION

DR. D. SMITH, Bridgeport: Nasal surgery for the prevention of consumption is, at first thought, somewhat startling. For some years, however, I have been making careful search for small defects in the nose and pharynx and obliterating them. We are used to the correction of large defects; but the idea of making an ordinarily well person perfectly well by paying attention to small defects, is a further step in development. The acquisition of a good nose and pharynx not only gives one practical freedom from colds, catarrh, sore-throat and the air-borne diseases generally, but also gives one a higher level of health; and this may be given to almost anyone who will take the time and trouble to have done those little bits of surgery that make the nose and pharynx approach the ideal. In cases of the removal of tonsils and adenoids, I am satisfied that the certainty of permanent cure and ideal end-results is to be found, not in thoroughness in extirpating tonsil tissue, but in thoroughness in searching out crypts and pockets and recesses that will admit a probe, and in converting them into shallow saucers by trimming their edges. In small tonsils it is the pockets and adhesions, and not the smooth tonsil tissue, that make the trouble.

DR. WILSON: We have definite and positive evidence that these small pockets are of importance in influenza, hay fever, asthma, and other minor diseases. We have not the clinical evidence, however, that they are important in pneumonia, tuberculosis, and other general diseases; and this is the point on which we need the help of the general practitioner.

(*To be continued*)

AMERICAN ASSOCIATION FOR CANCER RESEARCH

Meeting held at Washington, D. C., May 2, 1910

Spontaneous Cure of Carcinoma.

DR. GUTHRIE MCCONNELL, St. Louis: Carcinomatous growths without doubt do undergo regression, both spontaneously and after operations that do not completely remove the tumor. This may be due to the formation of connective tissue with necrosis and absorption of the cancer cells. Spontaneous disappearance is frequently seen in the tumors of mice. It also probably occurs more often in human beings than is realized. In the histologic examination of mouse tumors the more necrotic portions are in the immediate neighborhood of areas of hemorrhage, indicating that there may be some relationship between the two. The cells of all animals may be able to elaborate protective substances that enable them to resist infection. In mice it has been found that those which have recovered spontaneously are immune to further tumor inoculation. It is well known that many cells possess the power of forming ferments or enzymes which can bring about the destruction of proteid bodies. Many of these cells, when separated from their normal position, may undergo autolysis as a result of the action of elements set free by the degenerative changes. Petry has shown that the autolytic ferments are particularly active in carcinoma. In the mechanism of protection against the invasion of foreign cells, two factors are concerned—one, the protective ferments of the invaded body; the other, the enzymes of the tumor cells capable of exerting an autolytic action. Theoretically, cancer might be controlled either by increasing the activity of the body enzymes or by enhancing the power of the autolytic ferments of the tumor cell. The regression of tumor nodules may be due to the setting free of autolytic ferments as the tumor cells die from imperfect nutrition.

That recovery does occur, is shown by the reports of numerous observers. This is shown particularly well in the cases of Mackay and of Hodenpyl, in which the two patients, who had carcinoma of the breast with extensive metastases and were apparently on the point of death, regained their health almost completely. This occurred after marked collections of fluid had appeared in the pleural and abdominal cavities, respectively. It would seem that these fluids contained some substance that would bring about the destruction of the tumor cells. This was clearly shown by the experiments of Hodenpyl, who first injected the ascitic fluid from his case into mice that had been inoculated with cancer. As a result of this, the tumors underwent necrosis and either diminished in size or completely disappeared. He then employed the same methods in human beings with similar results, the effect being very much the same whether the fluid was injected into the tumor, into the adjacent tissue or into a vein. In no instance did any tissue in the body, other than the tumor, show the least reaction after the injections, nor were any systemic effects manifest even after large venous infusions. Hodenpyl's experiments indicate that there is some substance present in this proteid exudate that exerts an active influence on the growth. The curative action of the serum in these instances of regression of malignant growths is apparently not so much of an antitoxic nature as it is that of a lysis of specific cells.

Studies on Immunity in Cancers of the White Rat

DR. Y. LEVIN, New York: This research consisted in the treatment of animals by various methods in order to create a condition of immunity to cancer growth, without the assistance of living cells. The first series of experiments consisted in the treatment with arsacetin. Forty rats were treated for six weeks by hypodermic injections, first every two days and then every four days, of 1 c.c. of 4 per cent. solution of arsacetin. Three weeks after beginning of treatment, tumor was inoculated. The results were negative. In the next series twenty animals received an injection of sodium oleate, followed by an inoculation of tumor. The tumor took in 77 per cent. of the treated animals and in 100 per cent. of the controls. While the results are not absolutely positive, they indicate that some influence of lipoid substances may be found in subsequent studies.

A great deal better results were obtained by treatment with autolyzed liver tissue of the rat, before and after the inoculation of the tumor. Of the 60 treated animals, the tumor took only on 34 per cent., while it took in 85 per cent. of the controls. In the next series of experiments an abdominal incision was made in a rat, and all the vessels of the spleen were ligated. The animals were inoculated with tumor either before or after the operation. This method was used because sufficient spleen tissue cannot be obtained from a white rat for the usual method of autolysis. The results showed that the immunizing influence of such a ligated spleen is not as strong as the influence of autolyzed liver injected subcutaneously, and also that it has no effect if the operation is performed after the tumor is inoculated. Furthermore, in the course of a study of the different phases of atreptic immunity, the unexpected result was obtained that rats may be immunized, by treatment with normal mouse tissue, against subsequent inoculation of rat tumor. Of the 40 animals thus treated, the tumor took in 37 per cent. only, while it took in 90 per cent. of 40 control animals.

The most important conclusion which may be reached from this series of experiments is that this immunization cannot be due to life activities of the cell, but may also be obtained by treatment with enzyme-like constituent substances of the cell.

DR. RICHARD WEIL, New York: I am not certain as to the difference when you use autolyzed tissue or non-autolyzed tissue. All such tissue is immediately invaded by leucocytes, and the ferments of leucocytes break it up in the same way as do autolytic ferments. The question is whether there is any theoretic or fundamental difference in autolyzing tissues before you inject them or in permitting them to be autolyzed by injection. Another question is with regard to the normal process of absorption of tumors as regards immunity in rats. Is there autolysis in these tumors? Are they broken up by white cells, or do they simply disappear? Is there a preliminary autolysis, or is there invasion by white cells, or are they simply absorbed by some process which we are not able to explain?

DR. Y. LEVIN: Tissue aseptically removed from one animal and put into the skin of another animal undergoes autolysis. Ehrlich and Bashford assert that it is the living cell that immunizes, and their proof consists in crushing and freezing the cell. In order to prove that their negative results were due to too severe an injury to the cell, I produced the autolysis outside the body, and then produced immunity. As for the influence of leucocytes on autolytic ferments, autolytic ferments and endocellular ferments are not identical. Autolytic ferments are liberated on the death of the cell or immediately after its death, while, most probably, intracellular ferments are there before the cell dies. If you will put liver in the thermostat for a week or ten days, you will find proteolytic reaction, indicating the presence of enzymes, although you will have no living leucocytes there.

Transplantation of Retrogressing Tumors

DRS. A. STRICKLER AND LEO LOEB, Philadelphia: Having observed that a certain number of transplanted tumors retrogressed spontaneously after an initial period of growth and that the number of such retrogressing tumors can be increased considerably and at will, if the tumor material before inoculation is experimentally decreased in virulence by subjecting it in the test-tube to the influences of certain chemical and physical injurious factors (heat), we examined the power of growth of such retrogressing tumors after transplantation into new hosts. In the mouse, we found that after transplantation retrogressing tumors grew on the whole less vigorously than well-growing tumors; but they sometimes grew, and it was found that they may recover their full virulence, sometimes in the first generation, sometimes later. In eleven control experiments in which 47 dogs were inoculated with growing tumors, tumor growth resulted in 31 dogs (approximately 69 per cent. positive results), in four experiments in which four retrogressing tumors were inoculated in 13 dogs only two growing tumors were obtained, and one of these two tumors soon retrogressed spontaneously (approximately 15 per cent. positive

results). In such retrogressing lymphosarcomata we also found that, at least in the earlier stages of retrogression, mitoses may still be present in the tumor cells, notwithstanding the retrogression.

The results obtained in transplanting such tumors prove undoubtedly that retrogressing tumors are on the whole weakened in their capacity for growth, and that the decrease in the virulence of such tumor cells varies in different cases. This does not exclude the possibility that at early stages of retrogression or under otherwise very favorable conditions, a good tumor growth may even be obtained after transplantation of retrogressing tumors. After further transplantation a recovery of virulence may take place. The weakening of the cells of retrogressing tumors suggests that certain injurious substances circulate in the body fluid of animals which are the bearers of such tumors, notwithstanding the fact that it may be impossible to prove directly the presence of such substances.

Preliminary Results Obtained by Treating Cancer with Ascitic Fluid

DR. S. P. BEEBE, New York: The fluid used in these experiments was obtained from a case of cancer primary in the breast with metastases in the liver. The progress of the disease had at all times been slow, but since the production of the ascitic fluid there has been no progress at all. The patient has been in good physical condition and has, as far as can be determined, suffered in no way from the presence of the malignant condition. The physical and chemical characteristics of this fluid have been the subject of investigation and reports will appear later in regard to them.

The cases which have been treated with this fluid number nineteen—one intestinal cancer, six of uterine cancer, five breast cancer, three cases of epithelioma of the jaw, one cancer of the prostate, three cancer of the esophagus. The reaction of the patient to the injections is an individual one. It varies with each patient, and with the same patient from time to time. In 30 per cent. of the cases considerable improvement, locally and generally, may be expected. In no instance has there been any result which would lead one to expect a cure. The favorable effects have been as follows: Relief from pain, diminution of hemorrhage, and secretion from the tumor mass when it has been located on a mucous surface, increase in weight and appetite, marked improvement in the general physical condition. In 25 per cent. of the cases there has been a cessation of growth on the part of the tumor, and in a few it has appeared that the tumor has actually diminished in size. The serum has been given by subcutaneous injection in the flank and lumbar regions in doses varying from 10 to 125 c.c. The size of the dose and frequency of administration are determined by the reaction, both local and general. The local reaction in the tumor has been present in practically all cases that have taken as much as 50 to 75 c.c. of the fluid at daily intervals. If the publicity given to these observations results in the heterogenous use of ascitic fluid in the treatment of cancer, much harm will probably result.

DISCUSSION

DR. RICHARD WEIL: I would like to ask Dr. Beebe whether he is able to state that the fluid used recently is fully as potent as that which was first used. Also, would it not be wise at this time to caution investigators against the use of considerable amounts of this ascitic fluid, in view of the tendency to produce softening? I would like to ask if any observations have been made with ascitic fluid from persons without cancer.

DR. LEO LOEB: I would like to ask Dr. Beebe whether in transfusing blood of other dogs into tumor dogs, the blood of dogs in which tumors have retrogressed is more potent than the blood of normal dogs?

DR. JAMES EWING: I have had an opportunity to follow some of the cases treated by ascitic serum, and may say that I have never seen the results equalled by any other method of internal medication. We have tried to test as many sera as possible, and Dr. Beebe has reported on the results of a number of these, both cancerous and non-cancerous. However, it seems to me that the estimation of therapeutic results by variations in the size of the tumor is an extremely uncertain method. We have for some years been able to reduce the size of tumors by a number of methods, and with effects which at first seemed favorable. Yet other data must be considered in estimating therapeutic effects, especially when the diminution in the size of the tumor is produced rapidly. We are not justified in concluding that reduction in size is a wholly favorable process. Improvement in the general condition of the patient, regardless of the size of the tumor, has been observed in some cases, and is a favorable feature of the serum treatment. There are a great many pitfalls to be guarded against in this treatment, and I would express the same opinion as Dr. Beebe has given as to the extent to which it may be relied on. At the same time, it may be claimed that it opens up an interesting field of study.

DR. HARVEY R. GAYLORD: I recently had a pleural exudate from a case of stationary carcinoma in a woman who had resisted recurrence eight years after operation, followed by recurrence. This pleural exudate was tried on a primary mouse cancer, and it was found that when injected in large doses, 1/10 of the body weight, all of ten primary mouse cancers retrograded somewhat. The serum produced a definite reaction in these tumors after from 18 to 24 hours, evidenced by the mice biting at their tumors and their becoming distinctly warm and edematous. Two of the smaller tumors retrograded absolutely. Those removed for examination showed marked edema and hyperemia at the margins of the tumors.

DR. EDWARD H. RISLEY: I tried the use of a number of fluids, such as hydrocele, chest-transudates and non-cancerous ascitic fluid. In several cancer mice the tumors became smaller under treatment with hydrocele fluid. Hydrocele fluid was tried also on a patient with cancer of the rectum, and for the first two or three days the patient felt better and the tumor had softened, but the improvement was only temporary. There are four fluids which are used right along. One is from a cancer of the liver and contains a little bile. I have had to use this in very small doses, 5 to 10 minims. Two fluids are from cancer of the ovary. These fluids I have used constantly, three times a week, on a series of ten patients and they show very interesting results. I think it is largely psychic with a great many of these people. I have given as large a dose as 60 c.c. without any constitutional reaction. Most of the patients state that immediately after injection there is local swelling of the tumor, with some headache, and possibly chill. These fluids have all been tried on mice first. I propose to try other fluids and keep on with them as new patients present themselves. All patients as yet treated have been inoperable.

DR. BEEBE: The fluid we have used comes from various types of cases. There is no question that these fluids ought to be used with a good deal of caution. If the impression should get abroad among medical men not acquainted with the details of the subject that this is an instance where "a little does good, more would be better," and they should use large quantities, they would do a great deal of harm. For this reason I emphasize the necessity of being cautious in the use of any human fluid, and also with each patient. Susceptibility varies. In every case the treatment should be begun with a very small dose, gradually increased.

In regard to Dr. Loeb's question, it is my impression that the blood of dogs which have spontaneously recovered is better. In regard to Dr. Weil's question, I cannot answer that yet with any degree of satisfaction to myself, but it is my belief, and I thing it is brought out by this series of cases, that the chylous fluid has not in any way diminished its potency, and that it gives the best results. A curious fact, as Dr. Ewing stated, is that all of these patients gained in weight. I know one has gained 20 pounds. One, a corpulent subject, has complained of the gain in weight. As to the significance of this reaction locally in the tumor, we do not know how much that means.

Cancer Among American Indians and its Bearing on the Ethnologic Distribution of the Disease

DR. Y. LEVIN: The American Indians residing in the United States lend themselves peculiarly well to such an investigation, since the United States government considers this race as wards of the nation and consequently keeps practically a

record of each individual member. At each reservation or agency there resides a government physician. Of the 130 physicians thus employed, data were obtained from 107. The practice of these physicians covers a population of 115,455, and during a time ranging from a few months to over twenty years, and only 24 cases of cancer were encountered during the investigation. Thus cancer is extremely rare among the Indians, and this rare occurrence cannot be apparent, since it is impossible to suppose that cases of death from cancer could have escaped the notice of the government physician, nor did the investigation show any difference in length of life between the American Indians and their white neighbors. The only explanation, then, that may be given of these results is that racial characteristics, which comprise not only the ethnologic difference in the structure of the body, but also the difference in the environment, the mode of life, etc., must play an important part in the causation of cancer.

A Transmissible Sarcoma of the Common Fowl

DR. PEYTON ROUS, New York: This is a report of the first avian tumor that has proven transplantable to other individuals—a spindle-celled sarcoma of the hen, which has thus far been propagated to its fourth tumor-generation. Success has been made possible by the use of fowls from the intimately-related, pure-blood stock in which the growth was found. Market-bought fowls of similar variety and appearance, though probably not of pure blood, have shown themselves insusceptible, as have fowls of mixed breed, and pigeons and guinea-pigs. The percentage of successful transplantations has been small, but in the individuals developing a tumor its growth has been fairly rapid, and it has attained large size before obviously affecting the health of the host. Young chickens seem more susceptible than adults. The reinoculation of fowls once negative has always failed to result in a growth. Histologically, the tumor is a characteristic sarcoma, and it has remained true to type throughout the transplantations. It is infiltrative and destructive. As a rule, it undergoes widespread coagulation-necrosis at its center, and the thin rim of living tissue is not unfrequently myxomatous. Metastasis (to the heart) has been once observed. Experiments to determine whether the growth may be transmitted by cell-fragments have not yet been done. At best, it is difficult to propagate. Repeated bacteriologic examinations, including tests for acid-fast bacilli, have given negative results. In its general behavior, so far as tested, this avian tumor closely resembles the typical mammalian neoplasms that are transplantable.

The Chemistry of the Melanins of Tumors

DR. CARL L. ALSBERG, Washington: Some years ago I had occasion to study a melanotic sarcoma of the liver secondary to a choroid tumor of the eye. Inasmuch as melanin-like compounds may be formed by the action of enzymes, I undertook to investigate the question whether or not this melanotic tumor contained oxidizing enzymes capable of converting aromatic compounds into melanin-like bodies. I was able to find that tumor extracts formed pigment from pyrocatechin, but not appreciably from tyrosine. In view of the finding in my case, and the wide distribution of the oxidizing enzymes, it is doubtful whether this fact has much significance from a diagnostic point of view.

Influence of Heat on Tumor Cells

DRS. ELLEN P. C. WHITE AND LEO LOEB, Philadelphia: In continuation of the former experiments of one of us we studied the effect of heat on tumor cells in a quantitative manner and from various points of view. We heated the tumor material uniformly to 44 degrees in the test tube during variable periods. We found that the effect of heating varied approximately proportionately to the period of exposure up to a certain maximum when the influence became rapidly more intense. The curve of decrease of virulence under the influence of heating is accompanied by a similar curve indicating the number of retrogressions, which increased proportionately to the length of exposure to a certain point and then increased more rapidly. In originally weakly-growing tumors the relative effect of heating is not greater than in tumors that before the heating grew more vigorously. An increase in the energy of growth directly following low degrees of heating has not been observed. A summation of the effects of heating through a series of generations does not take place. The decrease in virulence is transmitted only to a limited number of cell generations. Gradually a recovery takes place. This proves an unexpected degree of elasticity which the tumor cells possess. To an unusual extent they are able to recover from injuries which they received. This is a new argument in favor of the statement published nine years ago by one of us, namely, that many facts render probable the assumption that somatic cells, of which the majority of the tumor cells represent a modification, are potentially immortal. On the other hand, through long-continued heating through many generations the resistance of the tumor cells to moderate degrees of heating does not take place. Neither an active immunization of the tumor cells, nor a selection of the naturally more resisting cells is noticeable.

STATE MEDICAL SOCIETY OF WISCONSIN

Sixty-fourth Annual Meeting, held in Milwaukee, June 22, 1910

Under the Presidency of DR. EDWARD EVANS, La Crosse

Officers Elected

The officers elected were named in THE JOURNAL last week, in the News Department.

Medical Education and Medicine

DR. EDWARD EVANS, La Crosse: The university must educate the public to know the great value and possibilities of modern medicine. Within a few years the free medical course has developed into the school of medicine. The state hygienic laboratory is doing vastly increased work in state medicine. A thorough course for medical health officers will soon be offered. In the universities the complex problems of state medicine must be solved. The department of health should be a department of the university. The university can do much for medical education where the medical school is an integral part, by maintaining high standards of entrance, by the inspiration of productive scholarship and by the financial support of the medical department. The work done in the medical school at the University of Wisconsin the first two years is of the highest order. Here we may hope to see a great post-graduate school in medicine.

Medical inspection of schools should be compulsory. Industrial colleges should be inspected by the state. Water, milk and food supplies should be supervised. The infective diseases, especially the so-called social diseases, should be, if possible, eradicated. Proper vivisection should be uncompromisingly supported.

Human Pancreatic Juice

DR. H. C. BRADLEY, Madison: Human pancreatic juice in its normal form has been rarely attainable. In the case under consideration an opportunity offered for its examination for six successive weeks, owing to a temporary fistula. The physical and chemical characteristics of the juice were determined from day to day. And contrary to general teaching the juice was found seldom to be alkaline with sodium bicarbonate. Contrary to general belief pancreatic juice is proteolytic before it reaches the intestines; and the pancreatic juice of one animal will activate the pancreatic juice of another animal that flows inactively. The enzyme trypsin was found to activate itself within 48 hours to a week.

DISCUSSION

DR. WILHELM BECKER, Milwaukee: It is fairly well determined that it is merely atmospheric air, or the carbonic acid in the intestine, which activates the enzymes.

DR. A. S. LOEVENHART, Madison: Nothing has been thus far proved as to the nature of the activation of the pancreatic juice that comes about on standing; it is, perhaps, due to hydrolysis or some combination between the enzymes and some other unknown constituent of the juice.

Possibilities of Prophylaxis Against Insanity

DR. ARTHUR W. ROGERS, Oconomowoc: Insanity is increasing to an alarming extent. The fight against tuberculosis is world wide, but who hears of the fight against the prevalence of insanity? The disease must be fought through instruction in the public schools and on the part of parents. The liquor traffic should be regulated. The rapid increase of drug habitués must be checked. The social evil must be curbed. Venereal diseases must be as far as possible eradicated. Prejudice and ignorance must be overcome, for they have caused mental diseases to be neglected in the medical colleges and by the medical profession, giving rise to the crude schools of Eddyism and Emmanuelism. The physician has too long been only a medical man; he must also be a good citizen. A national department of health should be established. The first duty of the medical profession lies along the lines of prophylaxis. Education is the important feature. Reduce the number of medical colleges and elevate their standard, then wage a campaign through the medical and lay press, local and state boards of health, and through the schools and universities, to prevent the spread of insanity.

DISCUSSION

DR. W. F. BECKER, Milwaukee: Prophylaxis is a difficult problem. All the activities that make for human betterment lead to the solution of the problem of the prevention of insanity. Heredity and alcoholism are important factors of causation. I cannot endorse the sterilization of the criminal as practiced in Indiana. Environment and not vicious predisposition frequently produces the criminal. However, vasectomy and sterilization are advisable in cases of imbecility. Societies should be established for the care of the insane after their discharge from insane hospitals, and also for the care of those who are in danger of becoming insane. This is a most important point and should be undertaken along the lines of the antituberculosis crusade.

Results of Heredity and Their Bearing on Poverty, Crime and Disease

DR. A. W. WILMARTH, Chippewa Falls: There is a great awakening of public interest in the increase of the dependent classes. The number of mentally and morally incompetent may be measured in the loss of hundreds of thousands of dollars. Their cost to the competent members of society is reckoned in millions of dollars. Their harmful influence is beyond computation. The laws of Nature indicate and actual observation confirms the fact that the physical conditions on which such incompetency is based are in the majority of cases transmitted, and consequently largely preventable. Among other methods of curtailment I should suggest in proper cases restriction of marriage, sequestration and surgical intervention.

DISCUSSION

DR. W. H. WASHBURN, Milwaukee: Disease is a great factor in natural selection, and disease has been in great measure prevented by the advance in medical science. Under the circumstances it is surprising that the human race is as decent as it is, and we have the female portion of the community to thank that this is so. Humanity and altruism impose on us the obligation of supervising the unborn. In the case of chronic criminals, I advise vasectomy or resection of the Fallopian tubes. Education is the keynote. Let us take the first step. The people must be educated. Then in another generation the legislators can be reached and, perhaps, in a generation after that legislation secured.

Correlation Between Splanchnoptosis and Pulmonary Tuberculosis

DR. WILHELM BECKER, Milwaukee: The phthisic habit and asthenia universalis, splanchnoptosis, are identical. Hence, the phthisical habit is not a specific phthisical inheritance. Stiller's costal stigma is a constant concomitant of the habit, indicating its presence, but not its degree. Stiller's costal stigma, being a congenital defect, and present in earliest infancy can, therefore, be considered a diagnostic feature of the habitus phthisicus (so-called) long before phthisis has developed. The early diagnosis of asthenia universalis offers great opportunities of combating congenital disposition to tuberculosis.

Practical Medicinal Therapeutics as it Appears from the Prescription File

DR. JULIUS NOER, Stoughton: An examination of many thousands of prescriptions from the files in drugstores shows prescriptions by physicians of an inordinate mass of pseudotherapeutic agents. My investigation shows, first, that talismanic therapeutics did not die with Paracelsus, nor has the mother church in Boston a monopoly as a promoter of pseudoscience; and second, that the excellent work of the Council on Pharmacy and Chemistry of the American Medical Association is not without cause and justification. How can we improve existing conditions as regards the use of proprietary and semisecret nostrums? We should urge the continuance of this monumental work of the council. The new edition of the Pharmacopeia should contain the remedies in general use by practicing physicians which have been shown to possess therapeutic properties. It would be further advisable to establish a pharmacologic laboratory.

DISCUSSION

DR. A. S. LOEVENHART, Madison: The situation is not encouraging. The nostrum and proprietary evil is growing. The whole drug business is in a bad state in many ways. With some striking exceptions, the vast majority of drug houses are interested purely and simply in the making of money and are unconcerned with the question of public health. Moreover, our expectations with regard to the pharmacopeial convention have been absolutely disappointed. The convention was dominated by poor medical schools and the pharmaceutical associations in the interests of the drug trade. The convention refused to pass a resolution excluding from the Pharmacopeia drugs which are known to possess no therapeutic effect. It is impossible to use the Pharmacopeia with our students when we know that of 975 titles only 150 to 250 drugs are of any therapeutic value.

The Plaster Spica in High Fractures of the Femur

DR. CHARLES H. LEMON, Milwaukee: With the plaster spica applied with the leg and thigh abducted, the thigh flexed on the trunk, seemingly impossible obstacles can many times be overcome. The plaster spica is by no means an easy dressing to apply. Its use requires a definite apprenticeship, but when one has become sufficiently skilled in its use, so that he has confidence in his ability to accomplish definite results, there is no appliance that gives greater comfort to the patient nor greater peace of mind to the surgeon.

Tincture of Iodin as a Skin Antiseptic

DR. M. W. DVORAK, La Crosse: As a skin antiseptic iodin has not received the attention it deserves. The method commends itself for simplicity and thoroughness, and wherever it is necessary to render the skin field aseptic.

DR. W. H. BROWN, Madison: Tincture of iodin produces absolute asepsis of the skin in three minutes, and penetrates deeply, sterilizing the entire depth of the epithelium. The bactericidal power is due to the iodin *per se* and not to the alcohol. Skin changes are not of serious import.

DISCUSSION

DR. A. S. LOEVENHART, Madison: The antiseptic power of iodin is dependent on its power to precipitate proteid and on its action as an oxydizing agent.

DR. L. A. MOORE, Monroe: The use of ether to dissolve the oil of the skin before applying the iodin causes the iodin to reach the deeper layers of the skin more readily. I have used iodin in fresh wounds with good results.

DR. JOSEPH F. SMITH, Wausau: I have adopted the use of iodin exclusively in clean cases. The results have been very gratifying. I have found no deleterious action on the skin.

DR. T. L. HARRINGTON, Milwaukee: I have been using tincture of iodin for a considerable time. It is a great advance over the ordinary skin antiseptics. Suppurating wounds are avoided.

DR. C. M. ECHOLS, Milwaukee: I should prefer a 50 per cent. solution of alcohol as a solvent.

The Medical and Surgical Aspects of Tumors, Including Inflammatory and Neoplastic Formations

DR. J. C. BLOODGOOD, Baltimore: The old treatment for cancer is still the only treatment—its radical removal. Malignant tumors are curable in proportion to the earliness of surgical intervention. There must be publicity in regard to early symptoms. Skill in differential diagnosis must be increased with a view to earlier recognition of malignancy. Contrary to general opinion, 50 per cent. of bone lesions are curable by operation without amputation. Amputation seldom effects a cure. When in doubt it is better to treat bone lesions as relatively benign. In examining bone lesions by the *x*-ray, take a number of skiagraphs, because bone lesions are often multiple. A bone cyst is a benign bone lesion and can be cured by simple incision and drainage. Curettement often cures where resection fails. Differential diagnosis must be studiously made between malignant sarcoma and benign bone cyst. Otherwise amputation may be done when contraindicated. Resection is often preferable to amputation, even in malignant bone tumors. But these operations should all be done as early as possible. Giant-cell sarcoma is frequently curable, as metastasis does not usually occur. In operating for giant-cell sarcoma remember the danger of hemorrhage. There is no danger of disseminating the disease by curetting.

Glands with continuous function, such as the thyroid, are not usually the seat of malignant disease, while in the breast which has not a continuous function carcinoma is relatively frequent (67 per cent. in 1048 cases). Although restricted operation is often proper in sarcoma it is dangerous in cancer of the breast. A lump in the breast should be regarded as an acute disease and treated accordingly. Early operation insures cure in 80 per cent. of cases, while the operation at the end of the fifth year effects cure in about 40 per cent. of cases. Differentiate between benign breast cyst and cancer. Ulcer of the nipple is suspicious. Complete excision should be the watchword. Recurrence is most frequent in cases which appeared to be favorable, and the operator is influenced by the desire to secure a cosmetic effect.

The Wassermann Reaction in Syphilis

DR. R. M. PEARCE, New York: The Wassermann test shows a high percentage of positive reactions in general paralysis, tabes, aneurism, aortic insufficiency, mesarteritis, chronic bone disease, arthritis deformans and congenital affections of the nervous system, most of which diseases may be classed as largely metasyphilitic. Seldom has a new method of diagnosis or treatment promised as much as does the Wassermann reaction, and if the future work tends to the fulfillment of this promise we have in the Wassermann reaction one of the greatest advances in the history of medicine ever made. The knowledge which it yields, coupled with that resulting from the study of the etiology and from experimental inoculation should eventually place syphilis in the group of subjugated diseases, diseases of which the etiology and pathology are known, for which there exists an absolute diagnostic method and a rational specific treatment.

Serum Treatment of Hemophilia

DR. A. J. PATEK, Milwaukee: The etiology of the disease is still shrouded in mystery, but it is probable that in hemophilics the clothing ferment is absent, deficient or held in abeyance. Human or animal blood serum applied locally, subcutaneously or intravenously may have a styptic action during hemorrhage. But owing to the danger of anaphylaxis when alien serum is used, human serum is preferable. A prophylactic injection of serum prior to operation is advisable in these cases. Subcutaneous injections are preferable in most cases. Transfusion may be employed in massive hemorrhage.

Chronic Diphtheria

DR. G. C. RUHLAND, Milwaukee: Chronic diphtheria is at present little or not at all recognized by the profession at large. It is a condition that, however, frequently is associated with definite symptoms of disease, the recognition of which is of greatest importance in the history of disease epidemics. It is fallacious to depend on symptoms for differentiating acute and chronic diseases. I desire to emphasize the great importance of local after-treatment in all cases of diphtheria, both for the good of the patient and for epidemiologic considerations.

Aneurism of the Thoracic Aorta

DR. JOSEPH F. SMITH, Wausau: My case was one of aneurism of the descending portion of the thoracic aorta, with fatal termination by rupture into the esophagus. The chief clinical feature of the case was persistent boring pain referred to the right lumbar region, just beneath the twelfth rib, and in front just beneath the right costal arch. Diagnosis in these cases is often difficult, and the *x*-ray is frequently a valuable aid.

Traumatic Hernia

DR. T. W. NUZUM, Janesville: In making experiments in the production of hernias 12 cats were used, 6 fasting and 6 not fasting. Hernias were more often and more easily produced in those that were fed. A rolling motion will more often produce hernia than direct pressure of equal severity. Seven hernias were produced, 3 inguinal and 4 diaphragmatic. The peritoneum was torn in 3 instances and was pushed in front of the hernial contents and formed a sac for the same in 4. In every instance there was more or less severe injury done to the vessels, viscera or both. As conclusions from these experiments it appears that hernia is not likely to be produced by a blow unless a punctured wound is produced. The rolling motion is more likely to produce hernia than mere pressure. The inguinal region and the diaphragm are points of least resistance. Hernia is more easily produced in the young than in fully developed muscular animals, and in those with a full stomach rather than in those fasting. In true traumatic hernia the peritoneum is often forced through the abdominal wall ahead of the hernial contents, forming a sac for the latter.

The Nursing Mother from the Baby's Standpoint

DR. A. W. MYERS, Milwaukee: There are three classes of errors into which nursing mothers may fall: (1) Too frequent nursing. A three-hour interval is about right. Do not wake the child up to nurse it. (2) Over-feeding on the part of the mother, producing milk which is too rich. (3) Lack of care on the part of the mother in choosing food, especially the too early and abundant use of fruit and vegetables. These are some of the causes which lead to the divorce of the baby from the breast on the ground of incompatibility of temperament.

RHODE ISLAND MEDICAL SOCIETY

Annual Meeting, held May 31, 1910

Under the Presidency of DR. EUGENE KINGMAN, Providence

Officers Elected

The following were elected to serve for the ensuing year: President, Dr. Augustine A. Mann, Central Falls; vice-presidents, Drs. Frederick T. Rogers, Providence, Alexander B. Briggs, Ashaway; secretary, Dr. Stephen A. Welch, Providence; treasurer, Dr. Winthrop A. Risk, Providence.

The treasurer reported that a special fund of $5,000 had been received from the estate of the late Dr. Horace G. Miller, which is to be used to maintain the ophthalmologic library.

The annual report of the secretary showed that the society numbered 384 members.

President's Address: The Needs of the Society

DR. EUGENE KINGMAN: By a provision of our charter we can hold property, a body politic and corporate. "Men may come and men may go, but we (can) go on forever." In

part we have accomplished the purposes for which this society was created. Directly or indirectly we have taken part in the creation and administration of health boards, the founding and serving of hospitals, the improvement of food, the restraint of disease and the enactment of wise medical laws. We have done something to advance the art of medicine by our prizes and publications. Much attention is paid to-day to the conservation of our national resources, and the greatest resource of all—the national health—until recent times comparatively neglected in the rapid material development of the country, is gradually assuming a place of first importance in the public mind and conscience.

Our society has two great needs: First, a home; second, money. For 98 years we have wandered from place to place, hiring whatever hall we could get. We need a place for a library, some thirty thousand books, including several complete and valuable files of medical journals. We need a large amount of money to further the purposes for which the society was founded. We need a building with its assembly and committee rooms, a salaried librarian and a book delivery system. We should have a complete laboratory and the services of a pathologist day and night. We should be able to employ eminent counsel to draft just medical laws. We should be able to pay certain chairmen of our committees to give all their time to the committees. We should have an emergency fund. Legislators are sometimes slow, and quick relief of impending evil often seems impossible. The amount needed is too large to be raised from members of this society. Physicians, as you well know, with few exceptions, after giving of their time and money to various charities, and paying their living expenses, have too little left to contribute largely to this cause. The endowment must come chiefly from the public and when the community understands that our work is to improve the physician, advance our art and help the people, they will in time respond generously.

The Eye in the Diagnosis of General Disease

DR. FREDERICK T. ROGERS, Providence: The eye is not to be relegated to the oculist; the general practitioner can recognize in it an important aid to diagnosis. On the conjunctiva hemorrhage in young people may show diabetes, in the aged arterio-sclerosis. The term conjunctivitis is a sort of "catch all" for physicians. There is a simple rule which will determine whether it is the conjunctiva, the iris, the sclera or the cornea which is affected. In conjunctivitis there is a disturbance of secretion without pain or photophobia; in corneal disease there is no increase of secretion but marked photophobia and subsequent pain, while in iritis there is a predominant pain and lacrimation and photophobia, dependent on the severity. The form of conjunctivitis most infrequently recognized is the phlyctenular. This is frequently associated with disturbance of digestion. The color of the sclera as in jaundice, chlorosis and nephritis is significant. Scleritis accompanies gout, rheumatism, syphilis and intestinal intoxication.

Keratitis, phyletenular and ulcerative, shows struma; parenchymatous keratitis in 75 per cent. of the cases means syphilis; and the dendritic form, when associated with supra-orbital tenderness, means malaria.

Iritis is frequent with syphilis, gonorrhea, diabetes and rheumatism. Paralysis of the muscles is shown by a squint or diplopia. Which muscle is affected is shown by noting that it is always on the side where the doubling occurs and belongs to the eye that sees the object that appears most distant. The findings of the ophthalmoscope are often indications of organic lesions. Headache due to the eyes will show an affection of the lids and conjunctivæ, secondary to errors of refraction as well as by disturbance of vision. The practitioner should use Snellen's chart and if the patient cannot read the letters at their proper distance may assume that the disease is defective vision.

Retinoscopy should also be known. Muscular anomalies are indicated simply by a test with red glass. If there is functional paresis a strong cylindrical glass in front of either eye will throw a red image and a white bar of light. In glaucoma a disturbance of the tension of the globe is frequently not recognized.

The Tonsils

DR. HARLAN P. ABBOTT, Providence: The tonsillar ring of Waldeyer comprises four lymphoid structures, the faucial tonsils, the lymphoid tissue in the naso-pharynx and the lymphoid tissue at the base of the tongue. When weakened by disease the tonsils are the portals by which bacteria gain entrance, passing the epithelial lining and through the parenchyma to the lymphatics and blood vessels.

Attempts are now being made to show that the tonsils when healthy have the function of taking care of the debris from neighboring organs. Hypertrophied tonsils are to be removed when obstructive symptoms are present. Diseased faucial tonsils should be removed, capsule and all, unless the patient is a bleeder.

Exophthalmic Goiter

DR. JAMES G. MUMFORD, Boston: It is stated by Wilson that certain changes in the thyroid bear a relation to the varying symptoms of the disease. Early in acute cases the thyroid produces an excess of secretion which is rapidly absorbed into the circulation.

The more active the secretion and absorption, the more severe are the symptoms. Per contra, anything which diminishes the secretion or obstructs the flow, improves the symptoms. Some cases progress so far that permanent changes in the heart and nervous system are established even though the gland appears as a colloid goiter. All careful recent observers are convinced that the complex symptoms which we designate as exophthalmic goiter are due to overactivity of the thyroid. The various old theories, the cardiac, the compression, the sympathetic, the nervous, the parathyroid and the thymus are generally discarded. Overdosing with thyroid extract a normal person will produce in him symptoms of Graves' disease. Conversely ligation will diminish the size of the thyroid with resulting relief to the symptoms.

The treatment of Graves' disease is still a matter of wide skepticism. Although the do-nothing attitude of previous years is still seen among large numbers of general practitioners, one finds on the other hand, a keen and almost rabid activity among certain surgeons and physicians and both groups show enormous per cent. of cures. Rogers and Beebe use a serum.

In 1909 they reported 480 cases in all stages. Serum cured 15 per cent. of the patients, while 10 per cent. more had no subjective symptoms though retaining the goiter and occasionally the exophthalmos. Fifty per cent. were improved; 17 per cent. unimproved and 8 per cent. died.

Compare these statistics with the results obtained by Jackson and Mead at the Massachusetts General Hospital with the use of Forchheimer's neutral hydrobromate of quinin, 5 gr., three times a day. They report patients in two groups, those heard from by letter and those seen and examined after two years. Of 29 patients heard from by letter, 20 were practically well; 7 unimproved and 2 dead. Of 56 reexamined patients 42 were cured (75 per cent.); 7 improved, and 6 no better. None was dead.

The *x*-ray has proved of little service. The operative treatment, especially partial thyroidectomy, has this objection—the operation may kill. Ligation of the thyroid arteries was recommended by Woffler as early as 1886. Ligation seems advisable in desperate cases where thyroidectomy is impossible or where it is used as a preliminary step. Statistics of 741 cases in which thyroidectomy was performed show 70.3 per cent. cured; 22.27 per cent. improved; 3.38 per cent. unimproved; 4.03 per cent. operation deaths, and 0.66 per cent. late deaths. In my own 19 operations 14 patients (73.7 per cent.) were cured, 5 (26.3 per cent.) improved and none died. As a result of operation the pulse rate falls often inside a week, the tremor subsides, the sweating is lessened, a good color and appetite return. The patients are astonished at the rapid improvement. We may conclude, however, that statistical tables cannot accurately show the results of treatment where the symptoms are so complex and involve so many organs.

NEW HAMPSHIRE MEDICAL ASSOCIATION

One Hundred and Nineteenth Annual Session, held at Concord, May 12, 1910

(Concluded from page 2137, Vol. LIV)

Conservative Surgery

DR. ALPHA H. HARRIMAN, Laconia: Well practiced surgery conserves the surgeon, and attempts to conserve the patient, though ostensibly the patient is the only consideration. It does not mean the do-nothing practice that some would have us believe, and, properly interpreted, it never did mean that. It does not mean that middle ground where the surgeon is everlastingly fearing his own reputation. In such a case the surgeon may be conservative, but he conserves his own interest and not that of the patient. Nor does conservative surgery mean the everlasting rushing into trouble. The man who has an operation for nearly every ill that flesh is heir to cannot be conservative. It is not his nature, and he brings, according to his activity, more or less a degree of disrepute on surgery. It must be concluded that that which conserves best the interests of the patient is to operate on all cases that are bound to give continued attacks of trouble. Conservatism is an anchor of hope. It is characteristic of good judgment, good reasoning, good diagnosis, good methods and capable always of giving good advice.

Anesthesia in Operations on the Aged

DR. JOHN H. GLEASON, Manchester: Surgical procedures as ordinarily performed on very old people with the aid of general anesthetics by inhalation are usually accompanied by great risks and are followed by a very high mortality; hence we must make use of agents which will produce little or no functional change—the local anesthetics or drugs which produce local or general anesthesia when injected subcutaneously or into the spinal canal. One should hesitate before adopting the practice of making high injections into the spinal canal. Scopolamin is perfectly safe, if injected once or twice in small amounts. Scopolamin, 1/100 gr., combined with morphin, 1/6 gr., given hypodermically, every 1½ hours, until two or three injections have been given, has been employed as a general anesthetic. About six years ago I conceived the idea of combining scopolamin anesthesia with local anesthesia, using 0.1 per cent. cocain. This technic proved so successful that about one year later I began to use partial scopolamin anesthesia, combined with local sterile water infiltration anesthesia, in operating on the aged. The operator must be familiar with the anatomy of the parts, especially as to the course and distribution of the sensory nerves. To gain control of the field, it is necessary to block the nerves by depositing sterile water around and in close proximity to them. I am convinced that by this method the management of surgical diseases in old people may be made comparatively safe, the mortality much reduced and seemingly inoperable cases made operable and curable.

The Use of Fat-Free Milk in Infant Feeding

DR. H. H. AMSDEN, Concord: The objections to the so-called percentage method of feeding, which was formulated and introduced by American pediatrists, notably Rotch and Holt, are: First, it is complicated and no two authorities give the same formulæ for calculating the percentages. Unless a careful analysis of the modified milk is made, the physician is by no means certain that he is getting the exact fractional percentages for which the method calls. Second, the amount to be given in any individual case is calculated arbitrarily according to the age of the child, rather than its weight or nutritional needs, and often it is generally a waste of time to attempt to adapt it to the case by a mere rearrangement of the percentage of fat, sugar and proteid without adopting more radical measures. The principal objection to the percentage method is that it assumes that the indigestibility of the proteid is the cause of difficulty in milk modification, and that all efforts must be directed toward overcoming this one feature. Clinical experience tends to prove that the fat rather than the casein is primarily responsible for curd formation. The best proof, however, that the proteids of cow's milk are not indigestible is the clinical test—feeding fat-free milk to infants. To one accustomed to the use of the percentage method it takes considerable courage to feed undiluted skim milk to a sick baby, but the results obtained have in each case justified the claims made by its advocates that a skim milk diet will result in the production of smooth salve-like stools, free from mucus and curds, inoffensive in odor, and unaccompanied by colic or constipation.

DISCUSSION

DR. HARRY W. N. BENNETT, Manchester: Until recently I believed in the high fat feeding and that proteids were at fault. Fat is not the most essential element in the child's food. If you cut out fat and supply skim milk, you will find that the trouble will clear up, and where there were constipation and colic you will get a child that sleeps during the day, digests its food, gains in weight, and stools become normal.

DR. MARION L. BUGBEE, Concord: I do not believe in skim milk for babies, and see no reason why one of the important food elements should be abstracted from the baby's food at all, if the child is born with a normal digestion. After ten years of constant use of modified milk for both well and sick babies, I can see no reason for giving it up. I have rarely been able to find fat curds in the stools of the modified milk fed babies, although the stools are frequently tested for them. Doctors should give more time to the study of feeding infants.

The Treatment of Inoperable Sarcoma with the Bacterial Toxins of Erysipelas and Bacillus Prodigiosus

DR. WILLIAM B. COLEY, New York: In my experience, in nearly 500 cases, there have been only three deaths. Most of the deaths in the hands of other men have been due to too large an initial dose given directly into a vascular primary growth. I rarely inject more than 1/6 mm. into the tumor in children, especially if situated in the neck or mediastinum, and never more than ¼ mm. in adults as the initial dose. I have had 56 cases of inoperable sarcoma successfully treated with the mixed toxins. Considerably more than 100 cases have been successfully treated by other surgeons. More than 10 per cent. of all cases treated have been successful.

Immunity with Special Reference to Vaccine Therapy

DR. TIMOTHY LEARY, Boston: Vaccine treatment in surgical conditions does not do away with the necessity for intelligent surgery.

It is essential that drainage be established. In infections of the kidneys where there is a local irritant in the form of a stone or where drainage is interfered with, vaccine treatment has little value. If the colon bacillus is the infecting agent intoxication will be relieved and fever eliminated but local infection will persist. In the bladder if residual urine is constantly present vaccine therapy is only palliative since the chronic irritation of the bladder mucosa by products of the saprophytic bacteria usually present will favor the continuation of the process. Staphylococcus vaccine is now accepted as the standard method of treatment of local conditions due to this organism. In general infections results are less satisfactory because, I believe, such a general process is usually a pyemia and the organisms in a pyemia are contained in masses of clot and less accessible to the antibodies which may be formed.

No final judgment of the value of any agent used in the treatment of tuberculosis can be made unless its practice has been followed for many years. I am, therefore, only hazarding an opinion of the value of tuberculin from our limited observation. I believe that tuberculin in proper doses is a valuable addition to standard methods of treatment. Its use, however, is associated with dangers which make extreme caution necessary in its exhibition. Wright's method, which calls for an extremely small dose at weekly intervals, seems to eliminate all dangers of over dosage. Vaccine therapy is

in its infancy. It is but a step in progress toward the specific therapy of infectious processes for which the medical work has been anxiously waiting.

DISCUSSION

DR. HOWARD N. KINGSFORD, Hanover: There are only a few cases in which the serum has been absolutely established as being of value, and whenever cases come up in which the serum is indicated, the physician should be extremely careful to get the material that he sends to the laboratory from the diseased area. As Dr. Leary says, the first culture is the important one, and results from cultures in the laboratory are not as good as those from cultures which come direct from the patient. The advance made in serum therapy is great in the last few years, and we are justified in trying it in cases in which we are absolutely sure about the diagnosis, or in cases which do not do well under the ordinary treatment.

DR. WILLIAM H. LEITH, Lancaster: While there is not, and cannot be expected to be, anything practical to be said from the general practitioner's standpoint, yet we have had some success in the matter of the treatment of furunculosis, papular acne, and gonorrheal arthritis, sufficient to give us hope that in a few years from now we may enter into a general and intelligent clinical discussion of this subject.

Nephritis

DR. FRANK B. EASTON, Laconia: Urinary findings cannot always be depended on to discover nephritis, if present; to rule it out, if absent, or to tell what the variety of pathologic lesion may be.

The urinary findings give absolutely no clue to what the exact appearance of the kidney may be. You may find diminished excretion and a large amount of albumin and at autopsy an indeterminate kidney. You may find an increased amount of urine with a small amount of albumin and an indeterminate kidney. Furthermore, you may have advanced arteriosclerosis in the rest of the body and none in the kidney and again advanced renal disease and normal urine.

That the urinary examination is of value must be confessed, but negative findings do not justify you in telling a patient with other clinical signs of nephritis that there is nothing the matter with his kidneys. There seems to be a family predisposition and there is evidence that special strains of bacteria and their toxins have a predilection for kidney tissue. Food, its amount and quality, is a real factor, the truism that more disease is caused by eating than drinking is as applicable to kidney disease as to disease of the stomach. The classification into parenchymatous, interstitial and arterio-sclerotic has serious objections, though that is the one generally used. The close dependence of the kidney on the heart and arteries, and the heart and arteries on the kidney should never be lost sight of. Chronic kidney disease may exist when the urine is normal and albumin and casts may be found and the kidney be normal.

The treatment in this condition is dietary, hygienic, hydrotherapeutic and only medicinal as symptoms may demand drugs. The diet should be regulated so that the patient should keep his body weight and get along as far as possible without proteids. Many anuric kidneys refuse to be flushed; they should be let alone until the amount of urine begins to increase when the intake of water may be correspondingly increased. Respiratory symptoms may be relieved by tapping when dyspnea is due to fluid in any of the cavities; when due to an uncompensated heart lesion digitalis may be used.

State Board Examinations

DR. GEORGE COOK, Concord: The members of this board are state officers, appointed by the governor to protect the interests of the people and guard them from incompetent persons practicing medicine in the state, as far as an examination will do this. We are not prosecuting officers.

All a state board can do is to guard the portal of entrance to the practice of medicine, and demand of all those who come before it an examination that will best show fitness to begin life's work, and not expert knowledge. I thoroughly believe that our examination should be confined wholly to the fundamentals, supplemented by such laboratory work as may show the ability of a man to comprehend this fundamental work. I would like to enter my feeble protest against the amount of work and the cramming process that is everywhere so prevalent in medical school teaching at the present time.

Representatives from the teaching force of a medical school or schools in the state, together with the members of the examining board, might mutually confer at an informal meeting and very much good could be accomplished; for, notwithstanding all the imperfections of our state boards, they have been a very potent factor in helping to raise the standard of medical education in this country. If the applicant can pass a reasonably good examination in the fundamentals, I will trust him in the elective he may choose. A fair and reasonable examination, both oral and written, in the fundamentals, together with such laboratory demonstration as will show the common things necessary to a more complete understanding of these same fundamentals. To my mind, the real crowning requisites to practice medicine are that the candidate shall be a Christian gentleman, or gentlewoman, and shall have common sense.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

July 7

1 *A Crusade Against Syphilis and Gonorrhea. F. H. Gerrish, Portland, Ore.
2 *Hemorrhage from the Kidney. P. M. Pilcher, Brooklyn, N. Y.
3 Individual Efficiency. F. P. Emerson, Boston.

1. **Crusade Against Syphilis and Gonorrhea.**—Gerrish discusses in a most excellent manner the following topics: Facts about syphilis; facts about gonorrhea; usual treatment of prostitution; etiology of prostitution; rational treatment of prostitution; sexual continence; the sanctity of life; the best size of family; how sex-education should be given, and treatment of sexual crimes. He insists that the first campaign of the crusade must be entirely educational. Already organizations have been formed for this specific purpose; but, in his judgment, they are not destined to accomplish as much as could be done through a different agency. The profession and the public are much more likely to be influenced in the desired direction if the instruction is offered by a great society, which is long established and widely known and honored, conducted by famous men, powerfully equipped in personnel, in traditions of the best methods, in a record of large achievements and in financial resources. A committee of such a society, composed of earnest, well-poised, altruistic men, who are interested in the work, would first assemble the forces of the several associations committed to this service, and unify and coordinate their various activities so that no effort would be lost by a duplication of work. Then a scheme would be adopted for reaching the public through the press. The newspaper syndicates afford the most accessible paths to the desired audience. There is needed an incessant, tireless presentation of the subject, so long continued that the densest intellect will be penetrated, the dullest mind awakened, the most obstinate objector convinced. Syphilis and gonorrhea should, he says, be reported.

2. **Hemorrhage from Kidney.**—Speaking of the treatment of this condition, Pilcher says that nephrotomy is the operation of choice because it allows a thorough examination of the kidney, and also for the reason that it accomplishes exactly what the operation of multiple ligation does in the treatment of varicosities in other portions of the body, in that it cuts six of the main connecting venous radicles of the kidney and in this way destroys the varicosities. The incision should be made along Broedel's line so as to avoid injury. Nephrectomy is indicated only when rapid and bloodless operation is demanded, or when nephrotomy fails to relieve the hematuria. Malignant growth requires the removal of the kidney; tuberculosis, removal of the uterer and kidney; renal stone,

removal of the calculus and sometimes nephrectomy. Nephralgia calls for renal decapsulation and the fixation of the organ.

Medical Record, New York

July 9

4 Progress in Medical Education. J. G. Schurman, Ithaca, N. Y.
5 The Hereditary and Congenital Causes of Exceptional Development. E. L. Hunt, New York.
6 The Paradox of the Tubercle Bacillus. I. Van Gieson, New York.
7 The Use of Internal Aluminum Splints in the Treatment of Fracture. W. S. Thomas, New York.
8 Tonsil Research. R. B. Faulkner, Pittsburg, Pa.
9 Anesthesia in Its Relation to the General Practitioner. H. W. Kearney, Washington, D. C.
10 The Enema—Its Place in the Treatment of Gastrointestinal Diseases. C. J. Drueck, Chicago.
11 *Statistical Analysis of Over 43,000 Cases of Diphtheria. M. Sallom, Philadelphia.
12 Congenital Fusion of Toes: Note on Previous Generations. F. Griffith, New York.

11. **Analysis of Diphtheria.**—The number of cases of diphtheria which have occurred during the past 12 years in Philadelphia, as reported to the Bureau of Health, has been 43,997. Of this number 7,097 terminated fatally. With more extensive use of the diphtheria antitoxin the mortality has been reduced from 24 per cent. in 1898 to 12.1 per cent. in 1909.

New York Medical Journal

July

13 Determinable and Indeterminable Factors in the Etiology of Typhoid Fever. L. L. Lumsden, Washington, D. C.
14 François Rabelais, M.D., Reformer and Buffoon. W. B. Konkle, Montoursville, Pa.
15 State Phthisiophilia and State Phthisiophobia: A Plea for Justice to the Consumptive. S. A. Knopf, New York.
16 The Quest and Winning of a Vesical Calculus. M. W. Ware, New York.
17 Vaccine Therapy in Serious Infections of Aural and Nasal Origin. C. Graef and R. B. Wynkoop, New York.
18 Gross' Duodenal Tube. M. Gross, New York.
19 Conglutinatio Orificii Uteri Extremi. M. F. Porter, Fort Wayne, Ind.
20 Abusive Use of Forceps in Primiparæ. A. Isaacson, New York.

Lancet-Clinic, Cincinnati

July 2

21 Cystitis: Diagnosis and Treatment. E. O. Smith, Cincinnati.
22 The Work and Aims of the State Board of Health. C. O. Probst, Columbus.
23 Municipal Hygiene. J. H. Landis, Cincinnati.

Kentucky Medical Journal, Bowling Green

June 15

24 Pathogenic Bacteria in Urine. E. S. Allen, Louisville.
25 The Dermatologist. M. L. Ravitch, Louisville.
26 Treatment of Acute Rhinitis. G. A. Robertson, Louisville.

Southern Medical Journal, Nashville

June

27 The Treatment of Pelvic Inflammation. O. S. McCown, Memphis.
28 Diagnosis, Pathology and Etiology of Pellagra. J. M. King, Nashville.
29 Gastrogenic Diarrhea. G. M. Niles, Atlanta, Ga.
30 Tuberculin Treatment in Pulmonary Tuberculosis. W. Litterer, Nashville.
31 Tuberculosis. J. J. King, Freeland, Pa.
32 *Double Identity. J. W. Stevens, Nashville.
33 The Treatment of Varicose Veins of the Lower Extremities. W. T. Black, Memphis.
34 Animal Diseases of Interest to the General Practitioner of Human Medicine. G. R. White, Nashville.
35 Lumbar Puncture. J. B. McElroy, Memphis.
36 The Use and Abuse of Atropin in Eye Diseases. E. P. Hoover, Jacksonville, Fla.
37 Calculus Impacted in Left Ureter: Removed Through Author's Operative Cytoscope. B. Lewis, St. Louis.

32. **Double Identity.**—The patient, a male aged 40, related a history that indicated the occurrence during the past 6 years of several periods of secondary personality, lasting from a few hours to several months, during which time he left home on business, took up new avocations, and had no knowledge of his former life, and on restoration to his normal personality, these periods remained as absolute blanks in his memory, and of them to-day, some years afterward, he still knows nothing, other than a few isolated facts that he has been able to discover through investigation. Sixteen years ago he had an apoplectiform attack. Left arm and leg were completely paralyzed for several days. This entirely disappeared in 5 or 6 weeks. The face was not affected. The tongue was clumsy, but there was probably no true aphasia. He has had "absent states" simulating *petit mal*, and has awakened in the morning with sore tongue, but he does not believe himself that this was due to having bitten it. His first attack came in July, 1904. He was then living in Atlanta, Ga., where he was employed in newspaper work. He was doing well in business, was in good general health, was not troubled about anything, and enjoyed the most pleasant social connections. Being greatly interested in religious affairs, he did a great deal of preaching at night. One afternoon in July, 1904, he boarded the train for Louisville, where he expected to enter the Baptist Theological Seminary to do some special work. The next he knew he found himself in Battell, Ala., in the latter part of December. He found out later that he had been preaching in Gadsden, Ala., which he learned from remarks made to him by a preacher whom he met afterward. A period of five months is a complete blank to him, and he has no idea by what name he was known during that time. He now went to Birmingham, where he was successful in work, and he married a second time, in June, 1905.

In August, 1907, he left Charleston, S. C., where he was doing newspaper work, for Orangeburg, to visit over Sunday with a friend. He realized that he was not well, and had been preparing for some time to wind up his business preparatory to entering a sanitarium for treatment. After a certain point in this journey from Charleston to Orangeburg he remembers nothing of himself until he came partially to himself in Macon, Ga., in November, 1907. This awakening was not complete, however, and there was established a third personality. In this latter he came to a partial recollection of himself then, but did not know how he had gotten to Macon, and the period of three months, from August to November, was and is a complete blank to him. He did not exactly know his name, but used one somewhat similar. The patient's memory of his past gradually came back to him except for the two periods above described and for short lapses of a few hours each. This return to his normal identity was broken by brief periods of confusion and dissociation for 3 or 4 months, and for a long time he was hazy on many points of his previous history that should have been perfectly familiar to him. These matters were gradually recalled by things told him by others. Until about the middle of April, 1910, he seems to have remained personality "A." About the middle of April last, however, another transition occurred, and he suddenly left Nashville without notice to his wife or employers and has not yet been located.

Medical Fortnightly, St. Louis

June 25

38 The Nation's Duty in the Conservation of Human Life, and Its Effect on the Cost of Life Insurance. L. H. Montgomery, Chicago.
39 A Plea for a Sane Fourth of July. H. J. Scherck, St. Louis.
40 Neurasthenia—Nervous Prostration, Nervous Exhaustion. T. G. Stephens, Sidney, Iowa.

Virginia Medical Semi-Monthly, Richmond

June 24

41 *Twenty-eight Cases of Gonorrheal Rheumatism Treated with Vaccines. W. G. Young, Washington, D. C.
42 *X*-rays as a Factor in Prognosis in Joint Injuries. A. L. Gray, Richmond.
43 Hepatic Gumma Simulating Perigastric Abscess. E. C. Prentiss and H. W. Crouse, El Paso, Texas.
44 Uncinariasis—Its Treatment. W. A. Brumfield, Richmond.
45 Puerperal Eclampsia. E. C. Prestridge, Alvarado, Texas.
46 The Alcohol Question. G. L. Servoss, Fairview, Nev.
47 Electrotherapy for Enlarged Prostate. W. T. Jones, Crozet, Va.

41. **Gonorrheal Rheumatism.**—Since September, 1908, Young has treated 28 cases of gonorrheal rheumatism with gonococcus vaccines. The duration of the gonorrhea prior to the onset of the rheumatism was from 9 days to 2 years. The duration of the rheumatism before vaccine treatment was begun was from 4 days to 6 months. Many of the cases were mild, but some of them were very severe. In 13 of the patients only 1 joint was involved. The wrist alone was affected in 3 patients; the ankle alone in 5; the knee alone in 1; the sacrolumbar articulation in 1, and the sacro-coccygeal articulation in 1. The joints most frequently affected were the ankle, knee and wrist. The ankle was involved in 10 cases, the knee in 8 and the wrist in 7. In 1, none of the joints was affected. The trouble all seemed to be in the biceps muscle and its sheath. The number of the injections ranged from 1 to 15. The dosage varied from 5 to 50 millions. The frequency of

the injections varied from every other day to once in two weeks. The injections were made subcutaneously in all cases —sometimes near the affected joint, sometimes in the arm, sometimes in the groin. Recently most of the injections have been made in the groin. Practically no other treatment was used in any of these cases. The results were as follows: Patients cured, 20; improved, 5. Patients in whom there was no improvement, 3.

Journal Missouri State Medical Association, St. Louis

June

48 The Possibilities of the *X*-ray in the Diagnosis of Eye, Ear, Nose and Throat Conditions. E. H. Skinner, Kansas City.
49 Diseases of the Gall-Bladder and Gall-Ducts. R. M. Funkhouser, St. Louis.
50 What Medical Inspection of School Children Means to the Public. C. W. Tooker, St. Louis.
51 Retroperitoneal Shortening of the Round Ligaments. W. E. Dicken, Oklahoma City.
52 Hypokinesis: Atony of the Intestines: Constipation. J. W. Ousley, Kansas City.
53 Bismuth Vaselin Paste in Osteomyelitis. T. R. Frazer, Commerce.
54 Selective Management of Retrodisplacement of the Uterus. H. S. Crossen, St. Louis.

California State Journal of Medicine, San Francisco

June

55 The Physician in His Relation to Public Life. J. H. Parkinson, Sacramento.
56 The Last Meeting of the Council on Medical Education of the American Medical Association with Comparisons Now Existing in California. W. J. Barlow, Los Angeles.
57 The California State Board of Medical Examiners. J. H. Barbat, San Francisco.
58 Urticaria—with Special Reference to the Cause in the Papular Forms in Children. E. D. Chipman, San Francisco.
59 Endemic Grippe in Children in San Francisco and Vicinity. S. Blum, San Francisco.

Gulf States Journal of Medicine and Surgery, and Journal of the Southern Medical Association, Mobile

May

60 Transfusion Methods. H. B. Gessner, New Orleans.
61 Viable Abdominal Pregnancy. S. C. Carson, Greensboro, Ala.
62 Venereal Prophylaxis. W. C. Newman, Independence, La.
63 Demonstration of Hodgin's Splint. T. F. Robinson, Bessemer, Ala.
64 Fevers as Seen in Alabama. O. V. Langley, Camp Hill, Ala.
65 Facts and Fallacies About Coffee. G. M. Niles, Atlanta, Ga.
66 *Typhoid Perforation: Operation, Recovery. J. M. Mason, Birmingham.

June

67 Whooping Cough and Its Complications. Z. B. Chamblee, Birmingham.
68 The Clinical Classification of Pulmonary Tuberculosis. W. J. Durel, New Orleans.
69 *End-to-End Anastomosis of the Brachial Artery. R. L. Turner, Meridian, Miss.
70 The Matas Operation—Obliterative Endoaneurysmorrhaphy in Popliteal Aneurism. J. Smyth, New Orleans.
71 The Treatment of Capsular Cataract. W. S. Sims, Jackson, Miss.
72 Arthrotomy for Gunshot Wound of the Knee. F. G. Dubose, Selma, Ala.
73 Chronic Gastromesenteric Ileus. A. L. Stavely, Washington, D. C.
74 Anterior Poliomyelitis. D. T. McCall, Mobile.
75 Pulmonary Consumption or Tuberculosis. C. M. Watson, Florence, Ala.
76 The Employment of the Police Power for the Promotion of Health. J. M. Foster, Montgomery.

66. Abstracted in THE JOURNAL, May 28, 1910, p. 1819.

69. **End-to-End Anastomosis.**—Turner's patient sustained an almost complete tear of the brachial artery as the result of the fracture of his humerus. After dissecting up the artery for about 1¼ inches in each direction, with a sharp pair of scissors Turner excised ¼ inch, leaving each end free from its beveled condition. Then with fine silk, and a very small conjunctival needle, he passed interrupted sutures through all the coats, bringing the ends of the vessel together carefully, tying each suture as it was placed, and holding its ends to steady the vessel until the next suture was passed. After removing constriction there was a slight leak that was controlled by another suture. There was slight oozing from the stitch holes, which soon discontinued. Turner then utilized the sac of this false traumatic aneurism, which was the expanded sheath of the vessel, by replacing it over the vessel with sutures. The incision was then closed with linen, the arm was dressed and bandaged to the side, to prevent any tension on the surface of the vessel.

The further progress of the case was uneventful. There was never at any time any indication of disturbance of the circulation in the arm.

Long Island Medical Journal, Brooklyn

June

77 Practical Hints on Joint Tuberculosis. L. W. Ely, New York.
78 The Treatment of Diphtheria, Scarlet Fever and Measles. S. R. Leahy, Brooklyn.
79 Affections of the External Auditory Meatus. J. E. Sheppard, Brooklyn.
80 Quinin and Urea Hydrochlorid as a Local Anesthesia. H. F. Graham, Brooklyn.
81 A Case of Ainhum. J. H. Long, Brooklyn.

Medical Herald, St. Joseph, Mo.

June

82 Psychotherapy in Relation to the General Practice of Medicine and Surgery. H. S. Munro, Omaha, Neb.
83 The Errors of Mind Healing. R. Wilman, St. Joseph.
84 Hemiplegia—Acute Onset. F. E. Coulter, Omaha.
85 Asexualization of the Unfit. G. H. Bogart, Brookville, Ind.
86 Expert Medical Evidence at One Dollar a Day. T. W. Schaefer and A. M. Wilson, Kansas City, Mo.

American Journal of Medical Sciences, Philadelphia

July

87 The Value of Optimism in Medicine. E. L. Trudeau, Saranac Lake, N. Y.
88 *The Treatment of Arterial Hypertension. A. R. Elliott, Chicago.
89 *Hemorrhagic Disease of the Newborn: Special Reference to Blood Coagulation and Serum Treatment. H. Schwartz and R. Ottenberg, New York.
90 The Radiograph Diagnosis and Classification of Early Pulmonary Tuberculosis. L. G. Cole, New York.
91 The Medical Aspects of Those Toxemias of Pregnancy Which Tend Toward Eclampsia. E. F. Wells, Chicago.
92 Disturbances of the Thyroid Secretion in Northern Mexico. W. C. Alvarez, Cananea, Sonora, Mex.
93 *Typhoid Spermatocystitis and Prostatitis, and Their Relation to Chronic Typhoid Bacilluria. J. W. Marchildon, St. Louis.
94 *Von Graefe's Sign in Myotonia Congenita (Thomsen's Disease). J. P. Sedgwick, Minneapolis.
95 Torsion of the Great Omentum. A. C. Griffith, Kansas City.
96 The Theoretic Consideration of the Wassermann Reaction and Its Practical Application. D. M. Kaplan, New York.
97 *Calcium Metabolism: Special Reference to Exophthalmic Goiter. C. Towles, Baltimore.
98 How Far Is Heredity a Cause of Aural Disease? B. A. Randall, Philadelphia.

88. This article will be abstracted in Department of Therapeutics.

89. **Hemorrhagic Disease of the Newborn.**—Schwartz and Ottenberg draw attention to a little recognized, clinically important fact of delayed or lost coagulation in the hemorrhagic disease of the newborn, and briefly describe two cases. The first case was one of multiple hemorrhages, total failure of blood coagulation. The injection of serum had no effect either on the coagulation time or the hemorrhages. The child's condition became worse, and a transfusion was determined on. The father was chosen as the donor. Blood obtained from the child just before the transfusion failed to clot at all. At the end of the transfusion the child's coagulation time was the same as that of the father's—three and one-half minutes. The child died 8 days after transfusion. The most important facts brought out in this case are the mother's history of miscarriages (syphilis?); the child was nursed at a suppurating breast; the late date (seven days) at which the hemorrhages began; the blood failed to coagulate; the marked temporary effect of the transfusion; reappearance of the original symptoms and progressive loss of coagulating power; and the child did not die exsanguinated.

The second case was also one of multiple hemorrhages with prolonged coagulation time; congenital syphilis; sterile blood culture. Death took place 8 hours after the child was first seen.

The authors conclude that impaired blood coagulation is the immediate cause of uncontrollable hemorrhages in the newborn, and that this is probably due to destruction of, or interference with, the production of thrombokinase. Bacterial infection is the most frequent underlying cause of the disease; but syphilis alone can cause the disease without bacterial infection. The value of serum injections is doubtful, but it is important that transfusion should be tried when ordinary measures have failed.

93. **Typhoid Spermatocystitis and Prostatitis.**—The findings in two cases at autopsy has led Marchildon to the suggestion that the seminal vesicles and the prostate may be infected in patients who have typhoid. From the location of the typhoid bacilli in the stained sections, and because of the fact that

some infections of the prostate gland and seminal vesicles have a tendency to assume a chronic character, there is reason to believe that in subjects recovering from typhoid, the prostate gland and the seminal vesicles may sometimes harbor typhoid bacilli for a long time. It can easily be assumed, he says, that the bacilli may readily pass into the urethra with the semen, and with the prostatic secretion reach the urinary bladder and produce a typhoid bacilluria. In this way we may explain the recurrence of typhoid bacilluria on the suspension of treatment, and also the fact that no clinical signs of kidney lesions are found in these patients. Clinically, therefore, in patients with typhoid bacilluria, the possibility of infection of the urine from these lesions in the prostate gland or seminal vesicles should be considered. In long-continued bacilluria, especially in patients in whom the micro-organisms disappear under treatment, and then reappear at a later period, and also in "chronic bacilli carriers," in whom the excretion of typhoid bacilli is by way of the urine, the attention of the clinician should be directed to these organs as offering a source for the distribution of the typhoid bacillus.

94. **Von Graefe's Sign in Myotonia Congenita.**—Sedgwick's study was undertaken because of the observation of a family with a history of marked von Graefe sign for five generations. The von Graefe sign is so evident that it is considered by the family the most interesting manifestation of the condition, and the underlying myotonia had gone undiagnosticated through several generations. The family is of the oldest New England stock. Of the 29 members recorded, 13 were affected with myotonia and 16 were free. All of those affected showed the von Graefe sign to a greater or less degree. Of the affected, seven are males and six are females, a fairly equal division. In the first generation, the paternal grandmother, in the second generation the father and the father's brother were affected. In the third generation one brother and one sister were affected, while one brother and one other sister were free. The myotonic brother transmitted it through two mothers to four out of five children. The unaffected brother and sister did not transmit it. None of them have complained of pain or disturbance of sensation. The patient of the third generation who gave this information had measles and pertussis as a child, and was in bed two days with influenza in 1892 without complications or sequels. He has been otherwise exceptionally well, strong and robust. His mentality is excellent. The trouble with the muscles manifests itself as a "stiffness." There is especial difficulty in relaxing them when they are once "fixed." This is more marked in moist or cool weather, or when he is warm and cools off. He describes the condition as "cramp-like but not painful." He has marked von Graefe sign. He can "feel the upper lid hang back" when he looks down. He notices the condition in the tongue, eyelids, face, mouth, hands and legs. Relaxation is more difficult than contraction. He has no trouble with the glottis, breathing or sphincters. There has been little change in the condition since boyhood.

97. **Calcium Metabolism.**—Towles found that calcium given in the form of the lactate enters into the general metabolism or allows the calcium already present in the body to be utilized without loss. Given by the mouth there is no toxic effect from the administration of 20 grams of calcium lactate over a period of 15 days.

The calcium metabolism of Basedow's disease shows no special peculiarity; it runs parallel with the nitrogen, and in those periods of the disease in which there is a loss of nitrogen there is also a loss of calcium—a parallelism which is found in other pathologic conditions.

New York State Journal of Medicine, New York

June

99 *The Pathology, Diagnosis and Treatment of Joint Tuberculosis. L. Ely, New York.
100 The Rheumatisms: Their Etiology and Pathology. E. LeFevre, New York.
101 *Osteitis Deformans (Paget's Disease). H. L. Elsner, Syracuse.
102 The Medical Conduct of the Otisville Sanatorium. E. S. McSweeny, Otisville.
103 Problems in Relation to Nurses' Training Schools. C. Stover, Amsterdam, N. Y.
104 *Relationship Between the State Board of Regents and Training Schools. J. Merzbach, Brooklyn.

99, 104. Abstracted in THE JOURNAL, Feb. 26, 1910, pp. 731, 732.

101. Abstracted in THE JOURNAL, March 5, 1910, p. 814.

Laryngoscope, St. Louis

June

105 The Deaf Child from the Viewpoint of the Physician and of the Teacher. J. K. Love, Glasgow, Scotland.
106 The Physiology of Hearing with Special Reference to Development of Speech. G. Hudson-Makuen, Philadelphia.
107 Clinical Aspects of Deaf-Mutism. E. R. Packard, Philadelphia.
108 The Physician and the Deaf Child. M. A. Goldstein, St. Louis.
109 Development of the Hearing. J. S. Anderson, Swarthmore.
110 Mental Development of the Deaf Child. E. M. Gallaudet, Washington, D. C.
111 Development of Speech in the Deaf Child. A. L. E. Crouter, Philadelphia.
112 Development of Language in the Deaf Child. J. W. Jones, Columbus.
113 Development of Speech Reading in the Deaf Child. M. McCowan, Chicago.

University of Pennsylvania Medical Bulletin, Philadelphia

June

114 *The Influence of Muscular Fatigue and of Alcohol on Certain of the Normal Defenses. A. C. Abbott and N. Gildersleeve, Philadelphia.
115 *Primary Pneumococcic Meningitis. H. D. Jump, Philadelphia.
116 Situs Inversus Viscerum. H. T. Karsner, Philadelphia.
117 Primary Carcinoma of the Vermiform Appendix. C. C. Norris, Philadelphia.
118 The Medical Side of Benjamin Franklin. W. Pepper, Philadelphia.

114. **Influence of Muscular Fatigue and Alcohol on Normal Defenses.**—It is a well-known fact that violent physical exercise after more or less prolonged periods of relative inaction is accompanied in some individuals by the development of inflammatory lesions; notably of boils, abscesses and other closely related superficial suppurations. It was with the view of elucidating this subject that the investigations forming the basis of this paper were undertaken by Abbot and Gildersleeve. They found that the opsonizing power of the blood as determined by the opsonic index may be markedly diminished by severe muscular exercise and by the ingestion of alcohol. Though the opsonic content is diminished as a result of severe muscular exercise, there is, on the other hand, a coincident temporary increase of the leucocyte content of the peripheral blood which may return to normal if exercise be continued. Prolonged muscular exercise *followed* by the injection of pyogenic bacteria may favor pyogenic infections, but violent muscular exercise *following* inoculation is more apt to result seriously than that preceding it. This is of practical moment in its bearing on the observation noted in the opening paragraph of this communication. The ingestion of alcohol is quickly accompanied by a lowered opsonic index, but the index as quickly returns to the normal with cessation of the alcohol. The amount of alcohol needed to bring about this result had no influence on the resistance of the animal to infection. In the light of these experiments the authors hold that it is manifest that factors other than those here considered are concerned in the condition of susceptibility and immunity, in so far, at least, as they relate to infection by the pyogenic organisms.

115. **Primary Pneumococcic Meningitis.**—The individual whose case Jump reports was a strong, robust white man, aged 22 years, who previous to his illness enjoyed perfect health. He was a furniture mover by occupation, and was much addicted to the use of tobacco and alcohol. The onset of the disease occurred with an attack of vomiting and moderate headache. Two days before that time he was dull and irritable. When first seen he was stuporous; lay with his mouth open, eyes half closed, groaning constantly. His lips were dry and cracked; his teeth covered with sordes; his tongue dry and heavily coated. There was an eruption of herpes on the lips and chin and a small abrasion on the chin. No other sign of traumatism was present. He replied to questions very slowly or not at all, and was hard to arouse. There was a general hyperesthesia, particularly manifested in the abdomen. The neck was stiff and painful on movement. Within a few hours his head became retracted and his back moderately arched. Kernig's sign and *tache cérébrale* were present and persisted until the end. Knee-jerks were present. His pupils were equally dilated and reacted moderately

to light. Clonic convulsions beginning in the arms and extending to the whole body, occurred a little later. His unconsciousness deepened into coma, which lasted until his death. His temperature was 101; pulse, 84; respirations, 28. Before death these became, temperature, 104; pulse, 100; respirations, 36. Under physical examination the heart and lungs were normal; ears normal. His death occurred about 36 hours after he came under observation, or 5½ days after the beginning of the disorder. Just before his death a few fine crepitant râles were detected posteriorly at the base of the right lung. A lumbar puncture was made and two ounces of cloudy, opalescent fluid flowed out under moderate pressure. After the puncture all of his symptoms moderated, but the pulse became irregular. The spinal fluid showed great numbers of pneumococci.

Journal of the Medical Society of New Jersey, Orange

June

119 Infrequent Pulse. C. D. Bennett, Newark.
120 Business Methods of Practice. A. E. Ewens, Atlantic City.
121 The School Doctor. W. B. Jennings, Haddonfield.
122 Prolapsing Kidney. E. Marvel, Atlantic City.

Ophthalmic Record, Chicago

June

123 Plexiform Angiofibroma of the Eyelids. M. Myerhof, Cairo, Egypt.
124 Ring Abscess of the Cornea. J. A. Patterson, Colorado Springs.
125 Historic Sketch of Jacques Daviel and His Work, Suggested by a Visit to His Grave. D. W. Greene, Dayton, Ohio.
126 The Trachoma Bodies from the Normal Conjunctiva. S. H. McKee, Montreal.
127 Ophthalmic Surgery. G. E. Dean, Scranton, Pa.

Journal of Medical Research, Boston

June

128 *Bactericidal Substances Extracted from Normal Leucocytes. H. Zinsser, New York.
129 *Typhoid Vaccines and Opsonins. S. W. Sappington, Philadelphia.
130 *A New and Improved Method of Enumerating Air Bacteria. L. F. Rettger, New Haven, Conn.
131 *Etiology of Tabardillo or Mexican Typhus; an Experimental Investigation. J. F. Anderson and J. Goldberger, U. S. P. H. and M.-H. S.
132 Effect of Dilution on Flocculation of Colloids. B. H. Buxton and A. H. Rahe, New York.
133 Calcification and Ossification. H. G. Wells and J. H. Mitchell, Chicago.
134 *The Cultivation of Tubercle Bacilli Directly from Sputum by the Use of Antiformin. L. Brown and D. Smith, Saranac Lake, N. Y.

128. **Bactericidal Substances Extracted from Leucocytes.**—Summing up his work, Zinsser says that extracts of normal rabbit leucocytes, both those obtained by aqueous extraction and those obtained by freezing in salt solution, have distinct bactericidal powers for pyogenic staphylococci and for *B. typhosus*. There is considerable uniformity in the action of various lots of such extracts on the same strain of microorganisms and it is apparent that separate strains of the same species show no decided variations in their susceptibility to the bactericidal substances contained in the extracts. In regard to thermostability, his results are uniform in confirming the researches of other workers in showing that the endocellular bactericidal substances are not destroyed by heating to 56 degrees C., but that temperatures of 75 C., at least, are necessary for their destruction. This justifies the conclusion that they are distinct from and differently constituted from the bactericidal substances of serum. It was further shown that, in the case of both organisms studied, reactivation of these substances after heating to 80 C. does not take place on the addition of fresh leucocytic extract. Quantitatively these bactericidal substances are insignificant compared with the bactericidal powers of normal serum. It is unlikely, therefore, that the bactericidal action of the leucocyte extracts has been responsible, except in a purely secondary way, for the curative results obtained in infection in animals and man. In regard to the detection of complement in leucocytic extracts, either for the activation of bactericidal antibodies in serum or for hemolytic amboceptor, Zinsser's work has been entirely negative. Immunization, furthermore, apparently did not enhance the bactericidal power of the leucocytic substances, at least in the case of *B. typhosus*, in which case alone experiments were done with this point in view. It would seem that these substances, as contained in the leucocytes may be at all times sufficient for the destruction of the limited numbers of bacteria which can be ingested by the cell, and have no quantitative relationship to the specific immunity acquired by animals or human beings during their reactions against spontaneous or experimental infection.

129. **Typhoid Vaccines and Opsonins.**—In the 22 cases of typhoid treated by Sappington there were 3 deaths. One of these was regarded as hopeless when vaccines were employed, and they were used only in an experimental way to see if any reaction could be obtained in a subject practically dying. This leaves two deaths in 21, or 9.5 per cent. This is by no means a low mortality, though the percentage of fatalities under routine treatment during the same period was greater. Sappington found that the injection of a few small doses of an autogenous or stock typhoid vaccine produces decided effects in the healthy or those sick with typhoid. In the healthy after a period of about 7 days, there is demonstrable an increase of agglutinins and opsonins. In those ill with typhoid, similar inoculations produce, in the majority of cases, distinct, prompt and usually beneficial effects on the general symptomatology, temperature, course and opsonic index. As the method is dependent on active immunity, a certain amount of reaction in the patient is essential. It will not do to assume that vaccines are harmless, and a safe guide for dosage and frequency of inoculation is very desirable. It may be that this will be found in the temperature course of the opsonic index. The opsonic course in typhoid averages an index level around or above two. The index is usually high early in the disease, sinks a little toward the end of the continued temperature and rises with the decline of temperature and the advent of convalescence. It may fall to normal soon after recovery. Some patients, towards the close, exhibit low indices with improvement in all other lines, which suggests the fallacy of relying on high opsonins alone as a guide to the patient's condition. As a rule, however, the opsonic index approximates very closely the clinical course of the disease, being low when the patient is very ill and rising with improvement. The height of the opsonic index in typhoid may be of some value in diagnosis when the Widal reaction is negative.

130. **Method of Enumerating Air Bacteria.**—In the method described by Rettger the entire special apparatus consists of a glass tube with a small round bulb at one end. The bulb has 8 or 10 small perforations which serve the purpose of allowing the air to pass through at a rapid rate and yet divide the gas to such an extent that every particle of it is brought into close contact with the filtering fluid. This glass tube or aëroscope is fitted into a small, thick-walled test-tube by means of a rubber stopper which also bears, besides the aëroscope, a short glass tube bent at right angles. The upper end of the aëroscope is bent at an angle of about 45 degrees, in order to prevent bacteria and particles of dust from falling into the open end of the tube, and still permit of the tube being drawn through the stopper without difficulty. A detailed description of the method is given.

131. **Etiology of Tabardillo.**—As the result of rather extended observation of this disease, Anderson and Goldberger came to the conclusion that Rocky Mountain spotted fever and tabardillo are distinct diseases. At least two species of monkeys, *Macacus rhesus* and *Cebus capucinus*, are susceptible to intraperitoneal inoculation with the blood from human cases of tabardillo. One attack of the disease in the monkey produced by blood inoculation directly from man induces a definite immunity to a subsequent inoculation with virulent blood. The blood from a human case of tabardillo is infective on, at least, the eighth day of the disease; it seems probable, however, that it will be found infective throughout the active febrile stage. The blood from a case in the monkey (*Macacus rhesus*) is infective by passage to a second monkey of the same species on at least the fifth and sixth days of the disease. Diluted blood serum from a human case of tabardillo, when passed through a Berkefeld filter, failed, when inoculated into a monkey, to produce the disease. The disease is not conveyed by fomites as such; nor is it contagious in the ordinary sense of this word. The epidemiologic facts of the disease,

in Anderson and Goldberger's opinion, point unmistakably to an insect intermediary, and they believe that their observations point strongly to the body louse (*Pediculus vestimenti*) as this insect. They are of the opinion that the evidence against the body louse as transmitter of tabardillo is sufficient to demand that prophylactic sanitary measures directed against this disease should take that insect into consideration.

134. **Cultivation of Tubercle Bacilli.**—Fifty specimens of sputum were studied by Brown and Smith. Of these, 35 contained on microscopic examination at time of inoculation of culture media, tubercle bacilli in varying numbers, and in 15 no tubercle bacilli were found. Positive cultures were obtained in 33 (97 per cent.) of the 35 specimens in which tubercle bacilli were found and in four (27 per cent.) of the 15 specimens in which no tubercle bacilli were found, though also, in these four cases, bacilli had at some other time been found.

In the two cases which showed tubercle bacilli on microscopic examination and with which they failed to grow cultures, the attempt was repeated. The first instance showed tubercle bacilli on microscopic examination and a culture was obtained; in the second, the microscopic examination showed no tubercle bacilli and no culture was obtained. Guinea-pig inoculations were carried out with the 37 cultures by subcutaneous injection in the groin. One animal was used for each culture. Four died in 10 to 14 days. These showed beginning disease in the regional glands. Thirty-three died later and at autopsy showed extensive tuberculous lesions.

Journal of the Oklahoma State Medical Association, Muskogee

June

135 Medicine and Medical Organization: President's Address. W. C. Bradford, Shawnee.
136 Surgery. C. Blickensderfer, Shawnee.
137 Pediatrics. H. M. Williams, Wellston.
138 Pathology. E. Melvin, Guthrie.
139 The Need of Simplicity and Conciseness in the Practice of Medicine. R. H. Harper, Afton.
140 Suprapubic Prostatectomy. F. W. Noble, Guthrie.
141 New Orleans Clinics. V. Berry, Okmulgee.

Ohio State Medical Journal, Columbus

June

142 Trivialities and Progress. J. F. Binnie, Kansas City, Mo.
143 The Nitrites and Indications for Their Use. W. J. Conklin, Dayton.
144 *Pneumonia, with Severe Abdominal Symptoms Simulating Acute Diseases of the Region. H. J. Whitacre, Cincinnati.
145 The Need of Better Provision in Ohio for the Care and Treatment of Acute Mental Diseases. H. H. Drysdale, Cleveland.

144. Abstracted in THE JOURNAL, June 4, 1910, p. 1897.

American Journal of Urology, New York

June

146 Diseases of the Verumontanum as a Cause of Urinary Obstruction. G. K. Swinburne, New York.
147 *Cacodylate of Mercury in the Hypodermic Treatment of Syphilis. L. Gross, San Francisco.
148 The General Principles of Treatment of Vesical Hemorrhage. C. G. Cumston, Boston.
149 The Present Status of Prostatic Surgery. P. D. Littlejohn, New Haven.

147. **Treatment of Syphilis.**—The cacodylate of mercury preparation Gross has been using contains 8 milligrams (⅛ grain) of mercury calculated as metal, in each cubic centimeter (16 minims) of the solution. He commonly injects 1 c.c. (16 minims) about 3 times per week. Where the case has been severe and requires drastic treatment, he has given 2 c.c. (32 minims) at each injection to get the disease rapidly under control. Where the patient's business has prevented visits three times per week, he has given 2 c.c. (32 minims) once or twice per week.

In the last 9 years' experience in the use of injections, three and one-half of which have been with mercury cacodylate, an abscess has never occurred. An advantage in cacodylate of mercury, says Gross, is the presence of arsenic. Arsenic is beneficial in many obstinate cutaneous manifestations and in cutaneous affections superimposed on the syphilitic infection. In his cases he has oftentimes been astounded at the rapidity with which the syphilides in the early secondaries have disappeared. He has had only one case where there were symptoms of intoxication. This was in a worker in lead and he had an idiosyncrasy against mercury. Inunctions and internal treatment were substituted, but the intoxication was even greater. Mercury in all forms was discontinued and he was placed on Zittmann's decoction, which caused all symptoms to disappear after the use of the second gallon.

Journal of Ophthalmology and Oto-Laryngology, Chicago

June

150 *The Possibilities of the *X*-ray in the Diagnosis of Eye, Ear, Nose and Throat Conditions. E. H. Skinner, Kansas City, Mo.
151 Surgery of the Nasal Septum. W. D. Black, St. Louis.

150. Published in the Journal of the Missouri State Medical Association, June, 1910.

Kansas City Medical Index-Lancet

June

152 The Medical Aspect of Mental Healing. J. Punton, Kansas City.
153 Duration of the Treatment of Syphilis. E. C. Hays, Hot Springs, Ark.
154 Unusual Gunshot Wounds: Report of Two Cases. D. A. Myers, Lawton, Okla.

Denver Medical Times and Utah Medical Journal

July

155 *Chylous Ascites and Chylothorax. C. B. Van Zant, Denver.
156 Aural Complications. F. E. Wallace, Pueblo, Colo.
157 The Etiology of Phlegmasia Alba Dolens. E. H. Smith, Ogden, Utah.
158 Degenerative Changes in the Spinal Cord in Pernicious Anemia. J. R. Morrell, Ogden, Utah.

155. **Chylous Ascites.**—In VanZant's present case, the diagnosis was readily made, after a little study of its symptoms and progress, of a blocking of the thoracic duct high up in the thorax, leading to lymph and chyle stasis, and transudation of these fluids below. The pancreas (its body) was imbedded in a large mass, 1⅝ by 3½ by 1¾ inches, apparently consisting of coalesced lymph nodes of a pinkish color and granular appearance.

The receptaculum chyli was somewhat dilated. In the thoracic cavity, opposite the body of the tenth dorsal vertebra, a large lymphatic gland, one inch long, was found adherent to the wall of the thoracic duct, obliterating its caliber. Here and there, higher up along the thoracic duct, up to the level of the root of the lungs, on both sides of the duct, were found greatly enlarged lymph glands, pressing on the duct, so that a probe could not be passed up its caliber more than an inch without being stopped by these glands completely blocking the way. These enlarged glands could be felt higher up the duct, even into the root of the neck near its terminus. The failure to obtain a typical enlarged gland for histologic study leaves the cause of general glandular involvement in the case undetermined. The liver, lung and spleen showed a most striking infiltration with lymphocytes. In the serous capsules of these organs there were numerous rounded masses of small round cells, giving the impression of lymph spaces distended and closely packed with lymphocytes. These cell masses formed the innumerable small nodules which resembled miliary tubercles macroscopically. In the liver the interlobular tissue was densely infiltrated with lymphocytes; and in the lung the perivascular and peribronchial lymph spaces were closely packed with similar cells. The right lung also showed marked atelectasis with overgrowth of fibrous tissue in the alveolar walls.

Frequent tappings, probably 15 in number, were done only when imperatively required by great and increasing dyspnea. Femoral phlebitis, herpes zoster and transient pyuria were interesting complications of the case.

Journal South Carolina State Medical Association, Charleston

May

159 The Nature of Neurasthenia. B. R. Tucker, Richmond, Va.
160 Gastric Atony. F. M. Durham, Columbia, S. C.
161 Placenta Prævia—Its Treatment. H. R. Black, Spartanburg.
162 First Aid in Injured Eyes. E. F. Parker, Charleston.

Detroit Medical Journal

June

163 Practical Suggestions on Mastoid Surgery of Interest to the General Practitioner. S. J. Kopetsky, New York.
164 Alcohol and Its Effects on the Nervous System. A. W. Ives, Detroit.
165 Pellagra. J. W. Trask, Washington, D. C.
166 Greek: Its Value to the Physician. J. H. Dempster, Detroit.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

June 25

1 *The Bionomics of Helminths. W. Nicoll.
2 Recurrent Motor Paralysis in Migrain. J. M. Clarke.
3 The Value of Serums and Vaccines in the Treatment of Disease. N. Raw.
4 *Measuring the Antitryptic Index. F. C. Eve.
5 The Value of Test Meals as a Guide to Infant Feeding. R. Carter.
6 *Ovarian Grafting and Menstruation. T. Tuffier and E. S. Chapman.
7 Sleeping Sickness Showing Regular Periodical Increase of the Parasites Disclosed. R. Ross and D. Thomson.

1. **The Bionomics of Helminths.**—The point of special interest to physicians in Nicoll's paper is that dealing with the prophylaxis of helminthiasis. He says that the cooking of foods, the wearing of clothes, and the application of sanitation and personal cleanliness are the three chief means of defense against helminths. Food is the essential factor in the transmission of parasites in the vast majority of cases. Infection with trematodes and cestodes (which are heteroxenous) can be acquired only in this way, with the doubtful exception of schistosomiasis. This, however, applies only to a limited extent in the case of nematodes (which are monoxenous).

The most effectual remedies against the inroad of platyhelminths are proper cooking of food and filtration of drinking water. All parasites are killed by exposure to a temperature of 100 C. (or even less), but it is of importance that the whole of the food be raised to this temperature, not merely the exterior. Most natural waters contain minute crustaceans and other animals, which frequently harbor helminth larvæ. Careful filtering, however, entirely removes them. The wearing of clothes is not of the same far-reaching importance, but it appears to be essential in the case of ankylostoma, filaria, and schistosoma. Sanitation and cleanliness are of little less importance than the proper cooking of food. They are specially important from an epidemiologic point of view.

The only means of dealing with an epidemic consists in the immediate destruction or disposal of the feces from the infected cases, and in scrupulous personal cleanliness among those exposed to infection. Were these measures strictly carried out, there would be no such outbreaks of ankylostomiasis as have been notorious in Europe of recent years. It is this third factor which is most largely concerned in the spread of nematodes. There remains a fourth factor, which is not so directly connected with, or dependent on civilization, namely, the transmission of helminths through the active agency of insects. This is independent of food, sanitation and clothing. Even here, however, a means has been found to limit the occurrence of the disease—namely, by filling up the swamps and marshes and thus destroying the breeding grounds of the mosquito. This measure might well enough be included under sanitation. Could these prophylactic and preventive measures be carried out efficiently in all cases, men would cease to be afflicted with helminth parasites.

4. **The Antitryptic Index.**—After experimenting for four months, Eve found that by digesting for four and a half hours in the incubator instead of at room temperature, and by adding another 3 c.c. of fresh casein just before measuring the viscosity, the antitryptic power of a serum could be measured reliably with only 0.08 c.c. of serum and with quite homely apparatus. Ordinary glass tubing is washed with acid and then with water and dried. It is then drawn out at intervals of 3 in., whereby a number of cylinders with tapered ends are made. If held horizontally in the drop of blood on the patient's finger, these fill themselves without forming bubbles. The casein solution is made by weighing 6 grams of casein and stirring it into a paste with 30 c.c. of distilled water warmed to about 40 C. After adding 5 c.c. of decinormal NaOH, the mixture is stirred till the particles are all dissolved with the help of five drops of aqua ammoniæ fortior. Mix this solution with 95 c.c. of water, to which 5 drops of solution of formaldehyd have been added and filter through paper (or wool) carefully.

The piston pipette consists of a home-made capillary pipette with a little bulb holding about 0.1 c.c. up to the arrow-mark. The butt end of the pipette slides freely into a larger glass tube, and the piston joint is made tight by a collar of rubber fitting snugly, and lubricated by a drop of water. A finger over the hole in the end of the large tube converts it into a syringe, but the moment the finger is removed the internal air pressure is equalized, and the contained fluid (if held horizontally) remains stationary. Four grains (0.26 gram) of trypsin are stirred into a paste and mixed with 100 c.c. of water which has been freshly drawn from the tap to secure uniformity of temperature. The estimations were done in batches of 5, and hence 5 similar short test tubes were required. Into each, 5 c.c. of casein solution are measured; 0.08 c.c. of serum (approximately) is then very exactly measured into a capillary pipette. The point may be either plunged into the serum, or if scanty it is best to open both ends of the capsule and pour the serum from capsule to pipette held mouth to mouth. It is often difficult to break the blood capsules at the thick part without breaking the capillary end.

Each casein-serum mixture is shaken up as soon as it is made, and every test tube is marked with a grease pencil; 1 c.c. of trypsin is now added by pipette to each test tube. All five test tubes are corked, shaken and incubated for four and a half hours at about 40 C. They are then cooled under the tap and allowed to stand until next morning, if, as usually happens, this is most convenient. Five little flat-bottomed, steep-sided glass cells are required, about 2 in. in diameter and 1 in. high, which can be covered with a watch-glass and immersed in a photographer's developing dish (to act as a water bath). They are numbered in correspondence with the five test tubes; 3 c.c. of fresh casein solution are now added to each test tube, and the mixture is shaken and poured into each dish. The fresh casein is added because the acid decreases the viscosity of casein and hence the amino-acids accumulated during the four and a half hours' digestion will accentuate the differences in the reading of the viscosimeter, and thus render small differences in the antitryptic activity of the serums more measurable. Also the serum will be acting in a state of greater concentration.

The five dishes now contain 6 c.c. of fresh casein-trypsin-serum digest plus 3 c.c. of fresh casein. When they have stood for an hour or two to attain a condition of temperature equilibrium with their surroundings, each solution is aspirated in turn into the viscosimeter and the number of seconds which each fluid takes to run through from the mark M. to the top of the capillary portion is measured with a stop-watch. Each observation is repeated twice, or more, if not concordant.

6. **Ovarian Grafting and Menstruation.**—The authors suggest that the female organism is during a month under the influence of a toxin, the origin of which is at present unknown, but whose action is elective for the ovary; that the toxin produces an intense congestion of the ovary and, perhaps, a special metabolism; and that then an internal secretion derived from the ovary is formed which has a special action on the uterus, and which determines the discharge of blood. They report one case in which an ovary (removed from the same patient) was implanted into the abdominal wall on the right side. For some days following the operation there was complaint of pain on the right side of the wound, and the grafted ovary was tender on palpation. These symptoms, however, quickly subsided. Five months after the operation the patient complained that the abdominal pain had returned. There had been a slight yellowish-white vaginal discharge, at times offensive, so as to require douches.

Six weeks prior to her return, ten weeks after the operation, she had acute pain in the right side of the abdomen. This pain had come on suddenly and continued six days. She noticed that there was a swelling on the right side of the abdominal wound; there was no vaginal discharge of blood. The pain gradually passed off, and her state of health again became satisfactory. Four and a half months after the operation she observed a vaginal discharge of blood accompanied by acute pain in the abdomen, and she noticed that the swelling on the right side of the abdominal wound had again appeared. She suffered also from a dull pain across the sacrum, from headache and from lassitude. This discharge which was

thus associated with the usual signs and symptoms of a normal menstrual period continued for 5 days. In this case for a period of four and a half months there were present certain signs, such as the swelling of the ovary, flushings, and general lassitude, which were strong evidence of the presence in the organism of a poison having an elective action for the vasomotor system. After this period the grafted ovary had become permeated by new vessels originating from the parent body, newly formed blood-vessels had penetrated into the central portion of the ovary, and the menstruation, which up to that time had been in abeyance, was influenced by the grafted ovary and occurred again in the usual manner.

Lancet, London

June 25

8 The Behavior of the Leucocytes in Infection and Immunity. F. W. Andrewes.
9 *Anomalies of the Mind and the Evolution of the Mental Processes. R. Jones.
10 Administration of Public Health and Education Acts in Relation to Prevention and Cure of Diseases of the Throat and Nose. T. J. Faulder.
11 Gastrointestinal Fermentation. D. Sommerville.
12 *Hypodermic and Intramuscular Inoculation of Bacterial Vaccines as Demonstrated by Experiments with Typhoid Vaccine. D. Semple.
13 The Utility of the Antilytic Power of Horse Serum. F. C. Eve.
14 *The Treatment of Dysphagia of Laryngeal Tuberculosis by Alcohol Injections in the Superior Laryngeal Nerve. J. D. Grant.
15 Double Dermoid Cyst of Ovaries with Rupture into the Peritoneal Cavity. R. H. Lucy.

9. **Anomalies of the Mind.**—The influence of the "environment," says Jones, is an important factor in the estimation of mental unsoundness, although it is often overlooked. The organism (or the individual) and the environment constantly act and react on each other, and any defect of accommodation on the part of man is more often an indication of insanity than is the presence of any perverted instinct. Every person is sane or insane according to his own standard and in relation to his own environment, so that the environment must always be considered in estimating and realizing the presence of insanity. As the surroundings become more complex with the progress of civilization, so there must grow an increased power of adaptation of the individual, and herein lies the adaptation and connotation of insanity. The study of insanity takes notice of these relations, and the manifestations of the mind in response to both outward and inward stimuli become a prime factor. In dealing with the subject, Jones says, it is necessary to consider man in regard to his past as well as in regard to his future, and his immediate present. It is conduct, not illusions, hallucinations or delusions which constitutes insanity. Hallucinations, nevertheless, are dangerous symptoms, for they force themselves on the attention and they influence conduct. Aural hallucinations are often so relentless and so tyrannical and dominant that they not infrequently result in most dangerous acts of violence or destructive fury.

The forms of mental disorder most prevalent to-day, however, are those primarily prone to attack young people. It is a variety of mental diseases so incurable and chronic that it tends to fill asylums with hopelessly insane patients. The report of the Commissioners in Lunacy also supports the assertion that it is more common now than formerly. These cases almost invariably commence in depression, and it is justifiable to believe that the proportion has arisen from 21.5 per cent. to 30.2 per cent. of all cases of insanity in 25 years. Last year 1,156 cases (551 males and 605 females) were received into the asylums of England and Wales. Senile insanity has increased from 11 to 20 per cent. during a period of 15 years; 888 persons (380 males and 508 females) died during the year from changes accompanying senile decay. Cases of insanity commencing in neurasthenia and psychasthenia are more frequently met with now than in the past. Last year's report of the Commissioners in Lunacy gives over 200 cases admitted into asylums in which these causes were given. Overstrain, over-fatigue and over-excitement are responsible for such nervous disease. Mental stress is recorded to have caused insanity in 4,410 persons (1,902 males and 2,508 females). These cases are an indication of excesses of many kinds and they reflect the accentuation of the struggle for existence in civilized countries, the effect of town life, the quest for pleasure, and probably also the marriage of the unfit.

Cases of insanity associated with alcohol show no diminution in their incidence, for 2,446 men and 992 women of this class were admitted into the asylums of England and Wales last year—a proportion of 23.3 per cent. males and 8.9 per cent. females on all cases admitted. Epilepsy is a frequent factor in the admissions; 7 per cent. of the men and 5 per cent. of the women admitted were the proportions recorded. It is interesting to note that insanity after surgical operations appears to be on the increase. Last year 106 (39 males and 67 females) were admitted into asylums from this cause. Cardiovascular conditions and renal disease were responsible as a factor in the causation of insanity in 837 persons (425 males and 412 females), and 459 persons (176 males and 412 females) were reported to have died in asylums from renal disease within the year. The influenza bacillus as a nerve toxin is, in Jones' opinion, next in importance to the treponema pallidum as a specific cause of insanity; 568 cases were reported as occurring after influenza. Tuberculosis figures as a proximate or a predisposing cause in 183 persons (98 males and 85 females), whereas 1,332 (617 males and 715 females) died during the year, showing the high mortality from tubercle in asylums for the insane. Twenty-five persons who were insane died from diabetes mellitus.

12. **Inoculation of Bacterial Vaccines.**—The immunizing response following the inoculation of typhoid vaccine in rabbits as measured by the presence of agglutinins and opsonins in the blood, is the same, Semple claims, whether the vaccine is given subcutaneously or intramuscularly. In both methods of inoculation the agglutination and opsonic changes when plotted on a chart take somewhat similar courses, and in both an increase of opsonins. The intramuscular method of inoculating bacterial vaccines possesses no advantages whatever over the subcutaneous method, and as the latter gives rise to less pain and inconvenience it is to be preferred.

14. **Dysphagia of Laryngeal Tuberculosis.**—Six cases of odynphagia were treated by Grant by means of this method. In each case the pain disappeared and the patient was again able to swallow in comfort. Grant uses the solution recommended by Purves Stewart, consisting of 2 grains of hydrochlorid of beta-eucain in an ounce of 80 per cent. alcohol. The method of injection practiced is the one recommended by Rudolph Hoffmann.

Medical Press and Circular, London

June 15

16 Cercomonas Intestinalis, or Flagellata. U. Guastalla.
17 The Psychogenesis of some "Reflex" Neuroses. T. A. Williams.
18 Langenschwalbach as a Health Resort. F. Hüdepohl.
19 A Criticism of Some Principles in the Treatment of Chronic Nephritis. W. L. Brown.
20 What I Should Do if I had a Dog-bite. M. Tussau.

Clinical Journal, London

June 15

21 Syphilis. W. H. White.
22 Treatment of Septic Conditions. E. M. Corner.
23 Hemiplegia and its Treatment (continued). G. Holmes.

Journal of Tropical Medicine and Hygiene, London

June 1

24 Tertiary Yaws. A. A. Montague.
25 Urinary Calculus in Sierra Leone. D. Burrows.

June 15

26 Cases in Which Liver Pus was Coughed up Through the Right and Left Lung. J. Cantlie.

Indian Medical Gazette, Calcutta

May

27 Sleeping Sickness in Uganda. E. D. W. Greig.
28 The Berhampose Asylum for the Year 1909. C. J. Robertson-Milne.
29 The Purification of Native Sewage under Defined Conditions. W. W. Clemesha.
30 Nervous Breakdown as Observed in Burma. C. C. Barry.

Practitioner, London

June

31 Treatment of Tuberculous Glands. W. Bennett.
32 Differential Diagnosis in Dyspepsia. R. Hutchison.
33 Jejunostomy for Advanced Cancer of the Entire Stomach. W. G. Spencer.

34 *Five Difficult Cases of Fracture Requiring Operative Treatment. W. I. deC. Wheeler.
35 Management of the Vascular Factor in Kidney Disease. A. Morison.
36 *Diagnosis and Treatment of Hemorrhage from an Unenlarged Uterus. V. Bonney.
37 *Chronic Appendicitis. F. J. Steward.
38 Before and After Gastroenterostomy. J. M. Whyte.
39 Recent Work on the Diseases of Children. H. Thursfield.
40 The Treatment of Acute Intestinal Obstruction. E. C. Bevers.
41 Bacterial Disturbances of Digestion and Consequences Thereof. W. Tibbles.
42 Skin Diseases from the Point of View of General Practice. L. E. Ellis.
43 Hernia of the Bladder. W. P. Noall.
44 *Action of Alcohol on the Human System. H. A. Haig.
45 *Vicious Circles Associated with Disorders of the Respiratory Organs. J. Hurry.
46 The Significance of Albuminuria in Diagnosis. H. Barber.

34. **Difficult Fracture.**—The cases reported by Wheeler were: (1) A compound fracture of both bones of the leg followed by a fall down the steps; (2) an ununited fracture of the tibia and fibula of 11 months' standing; the fracture in the tibia had resulted in the formation of a false joint; (3) a case of fracture of the surgical neck of the humerus, which it was found impossible to reduce after a fortnight's treatment under the guidance of a fluorescent screen: (4) a long oblique fracture of the femur; (5) an oblique fracture of the middle of the shaft of the femur. In each case repair of the fracture had been delayed for some time so that an open operation was necessary. The Lane plates were used and the results were excellent.

36. **Treatment of Hemorrhage.**—In one case of severe intractable hemorrhage Bonney performed the operation of utriculoplasty devised by Howard Kelly. The patient made a satisfactory recovery, and has been menstruating once a month regularly, but the loss only endures for one day. Her general health has immensely improved.

37. **Chronic Appendicitis.**—Steward maintains that appendicitis frequently is from the first a chronic condition that may persist for years without the patient ever having what may be termed an acute appendicitis at all. He describes a number of cases that have come under his notice and which illustrate the several varieties of the condition that may occur.

44. **Action of Alcohol on the Human System.**—Haig believes that in health alcohol in moderation may be useful, but that its continuous use is to be avoided, and one must bear in mind the fact that a certain idiosyncrasy may exist; in diseased conditions, alcohol is in many cases of great value as a therapeutic agent of a temporary nature, always provided that it is used with discretion; and that taken in excess, or in smaller quantities over long periods of time, alcohol is extremely deleterious to the human system, so much so in fact that in many instances it has induced physicians to discontinue its use as a drug on the grounds that its disadvantages outweigh its advantages.

45. **Disorders of Respiratory Organs.**—Hurry describes four so-called vicious circles which may occur in connection with disease of the respiratory apparatus: (1) Pulmonary circle: Failure of right ventricle, tricuspid incompetence, congestion of coronary vein, impaired nutrition of myocardium, congestion of lungs. (2) Pleuritic circle: Increase of fibrinous effusion, stomata blocked by fibrinous effusion, diminished escape of fluid. (3) Bronchial circle: Increased accumulation of residue, bacterial decomposition of residues in bronchiectasis, increased dilatation of bronchial tubes. (4) Tracheal circle: Increased pressure on thyroid, stenosis of trachea, dyspnea, and increased respiratory activity.

Journal of Laryngology, Rhinology and Otology, London

June

47 Congenital Insufficiency of the Palate. A. B. Kelly.
48 Dermatitis of the Vestibule of the Nose, Probably due to Menthol. D. McKenzie.

Archives des Maladies de l'App. Digestif, Paris

May, IV, No. 5, pp. 241-304

49 *External Gastric Ulcer. (De l'ulcère externe de l'estomac.) G. Hayem.
50 *Membranous Pericolitis. P. Duval.
51 *Cecal Constipation. J. C. Roux.
52 Simple Apparatus for Estimating Fermentation in Feces. R. Goiffon.

49. **External Gastric Ulcer.**—Hayem applies this term to a destructive lesion in the outside of the stomach wall, of which he has encountered 7 cases. It might also be called external mal perforant or external mixed aneurism. The lesion works through the stomach wall, reaching the mucosa last; in only 2 of his cases did the ulceration extend to the mucosa, and with perforation in only one case. His patients were men between 33 and 62 and a woman of 45, and the external ulceration was an autopsy discovery. In nearly every case there was also ulceration on the inner aspect of the stomach wall, gastritis or cancer. The original cause seems to have been some neurotrophic disturbance.

50. **Membranous Pericolitis.**—Duval reports 4 cases apparently similar in every respect to those recorded by J. N. Jackson last year. In Duval's cases there was a painful point below the costal arch too far outward and too low to be referred to the gall-bladder, and palpation of the cecum showed it distended with gas, without any special painful point. But the entire ascending colon was painful and there was transient retention of feces in the region. An inflammatory origin for the disturbances was evident in his cases instead of the malformation of the peritoneum with which Jackson explains some of the cases.

51. **Cecal Constipation.**—Roux reports two cases which resemble the type described by Duval and Jackson but the obstruction in his cases was from adhesions at the right angle of the colon. Constipation from obstruction at this point is peculiarly harmful as the feces are kept in a semifluid condition by the constant arrival of intestinal juice from the small intestine. This permits absorption and consequent chronic intoxication, the results much more serious than when the feces stagnate in the rectum or descending colon. When they reach this region they are dry and bacterial life is arrested. The bowel contains here merely hard dry bodies without toxic action. In both Roux's cases no benefit was derived from medical measures but conditions rapidly improved after laparotomy with separation of adhesions and resection of superfluous omentum in one case.

Archives des Maladies du Cœur, etc., Paris

June, III, No. 6, pp. 337-400

53 Intravascular Hematolysis. (Hématolyse in vivo.—Hématogenèse.—Maladies autogènes du sang.) G. Froin.

Annales des Maladies des Org. Génito-urinaires, Paris

May 1, XXVIII, No. 9, pp. 769-864

54 Cancer of the Bladder with Almost Exclusive Metastasis in the Liver. (Néoplasme de la vessie. Généralisation hépatique presque exclusive.) J. Ferron and P. Nadal.

May 15, No. 10, pp. 865-960

55 *Diagnosis and Treatment of Unilateral Hematuric Nephritis. R. M. Fronnchtéine.

55. **Hematuric Nephritis.**—A case reported and the data in the literature seem to establish beyond question that copious hemorrhage in a kidney can occur only with some anatomic lesion in the parenchyma of the organ. Both kidneys may be involved in the acute hemorrhagic inflammation. When only one kidney is affected nephrectomy may become necessary. In the case described the patient was a healthy man of 32 and cancer was diagnosed on the basis of the periodical pain in the right kidney region, right hematuria and emission of vermiform clots, the positive antitrypsin reaction and emaciation. No tumor was found in the kidney but merely evidences of a hematuric connective-tissue nephritis. The severity of the hemorrhages and the rapid recovery after removal of the focus amply justified the intervention.

Bulletins de la Société de Pédiatrie, Paris

May, XII, No. 5, pp. 245-288

56 Permanent Benefit from Wedge Osteotomy in Case of Rachitic Incurving of the Tibia. V. Veau.
57 *"Caked" Purulent Pleurisy in Infants. (La pleurésie purulente en galette chez le nourrisson.) P. Armand-Delille.
58 *Localization of Pneumonia in Children. (Topographie des localisations pulmonaires de la pneumococcie infantile.) E. Weill and G. Mouriquand.
59 *Streptococcus Scarlatinal Meningitis. E. Weill and J. Chalier.
60 *Delirium in Tuberculous Meningitis in Children. G. Mouriquand.

57. **"Caked" Purulent Pleurisy in Infants and Young Children.**—Delille has encountered a number of cases of a circumscribed accumulation of pus and false membranes over the

pleura, the pus in the center still fluid but very thick. The "cake" thus formed may be from 1 to 4 inches in diameter but is never over an inch thick. It develops during the course of bronchopneumonia, and an exploratory puncture may reveal the presence of pus generally containing pneumococci. The layer of pus is thin and it is difficult to siphon out even as much as 20 or 40 gm. Healing is soon complete in the favorable cases, the remaining pus being speedily absorbed. The cases of purulent pleurisy in which cure follows simple exploratory puncture probably belong in this group.

58. **Localization in the Lung of Pneumonia in Young Children.**—The pneumococcus seems to attack by preference the left base and the right apex of the lungs in children, according to Weill's experience. In 240 cases this tendency to a localized process was evident in all but 40. The cases in which pneumonia was limited to the right apex were all of a mild type while complications were observed in 30 per cent. of the cases in which the base of the lung was affected. This proportional severity of the process differs from that in adults, the apical lesions being generally more severe in adults.

59. **Streptococcus Scarlatinal Meningitis.**—Weill found only one case of meningitis in 1,369 cases of scarlet fever at the Lyons Charité Hospital, and Gouget found only 20 on record. To these Weill adds the report of another case, the meningitis developing in a boy over 7 with apparently mild scarlet fever. The seventh day meningeal symptoms developed and autopsy revealed signs of suppurative cerebrospinal meningitis.

60. **Delirium in Tuberculous Meningitis.**—Mouriquand reports a case of tuberculous meningitis in which signs of involvement of the medulla oblongata were lacking and delirium predominated. The meningitis affected mostly the convexity of the brain with slight basal lesions. The delirium was systematized and tranquil, the child a girl of 11, conversing gently with imaginary persons.

Lyon Chirurgical, Lyons

June, III, No. 6, pp. 605-734

61 Two Hundred and Eight Gastroenterostomies with the Jaboulay Button. (Statistique de gastro-entérostomies faites avec le bouton anastomotique qui tient en place sans sutures.) M. Jaboulay.
62 Pneumotomy for Abscess in the Lung in 7 Cases. (L'ouverture des abcès du poumon.) E. Delanglade and J. Fiolle.
63 Isolation of the Duodenum and Pancreas. G. Cotte and L. Maurizot.

Lyon Médical, Lyons

May 29, XLII, No. 22, pp. 1109-1152

64 *Anastomosis of Mesenteric and Ovarian Veins in Treatment of Cirrhosis of the Liver. (Suture ovario-mesentérique dans un cas de cirrhose du foie.) E. Villard and L. Tavernier.

June 5, No. 23, pp. 1153-1188

65 Acute Delirium in Malignant Gonorrheal Endocarditis. S. Bonnamour and P. Gauthier.
66 *Diphtheria Antitoxin in Local Treatment and Prophylaxis of Various Infectious Processes. L. Thevenot.

64. **Venous Anastomosis in Treatment of Cirrhosis of the Liver.**—Villard and Tavernier are convinced that benefit is sure to follow an anastomosis in the lumbar region between the main inferior mesenteric vein and the left utero-ovarian in case of cirrhosis of the liver with ascites. They cut the veins and unite the stumps with an end-to-end suture, merely ligating the one stump of each vein left loose. This technic they say is preferable to side-to-side union or other methods. In the one clinical case in which they applied this principle in treatment of cirrhosis of the liver, the patient was in such advanced cachexia that he was unable to rally. The technic was also faulty, as other veins were used and one was bent and a thrombus developed at the point. Subsequent work on the cadaver showed the superiority of the technic described above.

66. **Local Application of Diphtheria Antitoxin.**—Thevenot advocates local application of desiccated antitoxin as an adjuvant in treatment of diphtheria and also as a precautionary measure for a time after recovery. Tablets of the desiccated serum, allowed to melt in the mouth, will aid in sterilizing the throat after recovery. It may be possible in this way to reduce the number of bacilli carriers. The local applications may also render the mucosa less apt to contract the infection from others.

Presse Médicale, Paris

June 15, XVIII, No. 48, pp. 441-448

67 Recent Research on the Origin and Development of the Lymphatics. J. Jolly.

June 18, No. 49, pp. 449-464

68 Cycle of Evolution of the Islands of Langerhans in the Pancreas. (Importance des ilots endocrines et de leur cycle évolutif dans la physiologie normale et pathologique du pancréas et particulièrement dans le diabète.) E. Laguesse.
69 *Syphilis and Sciatica. Lortat-Jacob and Sabaréanu.
70 Resistance of the Blood Corpuscles in Jaundice. (La résistance globulaire au cours de l'ictère.) J. Chalier.
71 Pathogenesis and Treatment of Hernia of the Large Intestine. R. Leriche.
72 *Emetics in Treatment of Paroxysmal Tachycardia. E. Devic and P. Savy.

69. **Syphilis and Sciatica.**—Lortat-Jacob urges careful search for syphilis in every case of sciatica of radicular origin for which no other cause can be discovered. His experience shows that the sciatica may disclose an unsuspected syphilis in its tertiary phase.

72. **Induction of Vomiting in Treatment of Paroxysmal Tachycardia.**—A previous communication by Savy on this subject was reviewed in THE JOURNAL, April 9, 1910, page 1240. Further experience has definitely confirmed, he asserts, the therapeutic efficiency of an emetic in arresting the crisis. It has never failed in any of his cases. The emetic probably acts on the medulla, confirming the bulbar origin of these attacks.

Semaine Médicale, Paris

June 22, XXX, No. 25, pp. 289-300

73 *Heredity as an Etiologic Factor in Cancer. R. de Bovis.

73. **Influence of Heredity on Incidence of Cancer.**—The conclusions of de Bovis' review of recent research on this subject are that heredity does play some part in the incidence of cancer, but not to the extent popularly assumed. At the present time there is probably no one living, he says, without one or more ancestors who have had cancer. If the influence of heredity were more potent every one over the age of 50 would therefore expect to die of cancer barring accidents or acute disease. The fact that this is not the case and study of vital statistics render very problematic any real decided increase in the prevalence of cancer. It is possible that an immunizing process occurs in course of time which prevents the cancer taint from passing beyond one or two generations. This would explain, he remarks, why succeeding generations of Bashford's cancer mice families do not seem to display any tendency above the average proportion to develop cancer. Research by Tyzzer, Mayet, Haaland in Norway, and the collective inquiries in Germany and Holland all confirm the influence of heredity, possibly increasing the chance of cancer by about 25 per cent. A point that has not been brought out with sufficient emphasis, he adds, is that the proportion of cancerous parents or grandparents must not be compared with the prevalence of cancer in our day but with the prevalence in the generation to which they belong. It will thus be seen that the incidence of cancer in the cancer families is unmistakably though slightly above the average. The negative conclusions in a collective inquiry in Hungary are evidently due to lack of authentic family histories among the Hungarian peasants.

Berliner klinische Wochenschrift

June 6, XLVII, No. 23, pp. 1045-1092

74 Ferments and Radioferments in Therapeutics. A. Sticker and E. Falk.
75 *Pregnancy and Diabetes. (Schwangerschaft und Zuckerkrankheit.) F. Hirschfeld.
76 Action of Hemolytic Organ Extracts. (Wirkung der Organhämolysine.) K. Donath.
77 Bacteriologic Study of Tuberculous Excreta. (Die neuesten Methoden des bakteriologischen Tuberkelbacillennachweises in verschiedenen pathologischen Excreten.) J. A. Finkelstein.
78 Determination of Stomach Ferments in the Urine and Their Diagnostic Significance. (Nachweis der Magenfermente im Urin.) E. Fuld and K. Hirayama.
79 Cooling of the Inspired Air in Ether Anesthesia. (Ueber die Abkühlung der Inspirationsluft bei der Aethertropfnarkose, ihre Bedeutung und ihre Verhütung.) M. Hoffmann.
80 Superheated Air, Weight Treatment and Vibratory Massage in Conservative Gynecology. (Zur konservativen Behandlung in der Gynäkologie.) E. Runge.
81 Bibliography on Radium. F. Eichholz.
82 *The Outlook for Medical Students. (Die Aussichten der Medizinstudierenden.)

75. **Pregnancy and Diabetes.**—Hirschfeld has encountered 4 cases of diabetes in young pregnant women and the diabetic functional disturbances became aggravated during the third and fourth months, but diabetic coma did not occur in any case during or closely following the pregnancy. This aggravation of the diabetes may subside or persist. The fact that pregnancy aggravates diabetes renders the prognosis comparatively more favorable when diabetes develops during pregnancy. Experience has shown that women have their power of carbohydrate oxidation reduced during pregnancy, even when they are otherwise normal. Glycosuria was observed in 10 per cent. of healthy pregnant women after intake of 100 gm. sugar, and when there was a nervous predisposition this pregnancy glycosuria developed on an ordinary diet. The mild form of diabetes does not seem to affect the fetus unfavorably.

82. **The Outlook for Medical Graduates.**—The Berlin Letter recently mentioned the circular which the Leipsic League is distributing, calling attention to the overcrowded condition of the medical profession in Germany. It states that only 618 places could be secured for the 898 applicants last year, 280 not finding a location, while the number of medical students enrolled at the present time is nearly a thousand more than last year. Official statistics show that the income of 34.8 per cent. of the physicians in Saxony is less than $1,075 and only 44.8 per cent. have up to $1,575, which is the very least amount on which a physician can live and bring up a family. The above figures include also all income from private property or other sources in the family. When the new legislation goes into effect making insurance against sickness compulsory on all with an income up to $500, only 8 per cent. of the total population will be exempt; that is, there will be only 62 families for the individual physician to draw on. If after years of waiting he obtains a position with the insurance company the work is tremendous, the pay far below that which was considered the minimum rate in 1815, and he is dependent on persons possibly his social inferiors, with their favor bestowed or withdrawn frequently for extraneous reasons, and the position of the medical man thus loses the prestige it had of yore. A single slight blunder may be regarded as malpractice and ruin him forever, while quacks thrive and in many places outnumber the physicians and are pardoned the grossest errors as "better cannot be expected of them on account of their lack of training." The circular adds that these are the conditions confronting the graduates of the longest and most expensive of the university courses. The medical course requires 6½ years. The expense averages at the most modest computation $2,500, the extras for practical instruction, for examination, for graduating exercises, books, instruments, etc., are large, and capital is required for opening an office and living expenses until a practice materializes. The physician is scarcely ever able to lay anything by for the future or pay much for life insurance, and if he becomes incapacitated he has no provision, no pension and there is nothing for his widow and orphans after his death. The relief funds maintained by the contributions of physicians in certain societies suffice only to keep incapacitated medical men and the numerous widows and orphans from actual starvation. This circular is being distributed in all the high schools and colleges throughout Germany.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

June 3, XIII, No. 9, pp. 321-368

83 Non-Operative Measures Applied in Treatment of Carcinoma to Date. (Die medikamentöse, diätetische und Fermenttherapie des Carcinoms.) E. Venus. Commenced in No. 6.

Deutsche medizinische Wochenschrift, Berlin

June 9, XXXVI, No. 23, pp. 1065-1112

84 *Diagnosis and Treatment of Fracture of the Skull. (Diagnostik und Behandlung der Schädelbrüche.) E. Payr. Commenced in No. 22.
85 *Operative Treatment of Perforated Gastric Ulcer. (Zur Operation des perforierten Magengeschwürs.) R. Mühsam.
86 Alcohol Sterilization of the Hands without Preliminary Scrubbing. Schumburg.
87 *Treatment of Severe Anemia by Intramuscular Injection of Blood. O. Huber.
88 Ambulant Tuberculin Treatment. Beninde.
89 *Treatment of Severe Bronchopneumonia in Young Children. J. Ibrahim.
90 *Nature and Importance of Rigidity of the Muscles as Sign of Tuberculous Apical Disease. (Wesen und die Bedeutung der Rigidität der Muskeln als Zeichen der tuberkulösen Lungenspitzenerkrankung.) C. Hart.
91 Pottenger's "Light Touch Palpation." (Leichte Tastpalpation.) J. W. Runeberg.

June 16, No. 24, pp. 1113-1160

92 Treatment of the Hemorrhagic Diathesis. H. Arnsperger.
93 *Presence of Tubercle Bacilli in the Blood and its Diagnostic Importance. (Vorkommen von Tuberkelbazillen im kreisenden Blute.) F. Jessen and L. Rabinowitsch.
94 Modifications of the Wassermann Reaction no Improvement over Original Technic. (Ueber die sogenannten "Verfeinerungen" der Wassermannschen Reaktion.) C. Stern.
95 Thirty Additional Cases of Irises Not Matching in Color. (Heterochromia iridum.) A. Lutz.
96 Commercial Tablets for Spinal Anesthesia Not Always Sterile. (Zur Frage der Sterilität der Novokain-Suprarenintabletten.) K. H. Kutscher.
97 Cholin Not Effectual in Experimental Sterilizing of Rabbits. (Ueber die angeblich sterilisierende Wirkung des Cholins.) F. Schenk.
98 The Early Therapeutic Reaction to the Roentgen Rays. (Die röntgen-therapeutische Frühreaktion.) H. E. Schmidt.

84. **Treatment of Fracture of the Skull.**—Of course, Payr remarks, the fracture itself cannot be treated, and to date there is no certain means for prophylaxis of meningitis, but much can be done to relieve the resulting injury of the contents of the skull, by lumbar puncture and puncture of the ventricles and Cushing's method of decompression trephining. The latter especially Payr regards as extremely important, both for the present and future. Lumbar puncture alone may relieve compression and by evacuating the bloody fluid will prevent irritation of the sensitive meninges and development of adhesions later. Puncture of the ventricle may prove a life-saving measure in case of a focus resulting from a contusion near the lateral or third ventricle. Traumatic internal hydrocephalus is comparatively frequent, even after slight injury, the free circulation of fluid being hampered by some anatomic changes or valve formation. In a recent case there was hemorrhage from ears and nose and facial paralysis with signs of compression of the brain, vomiting, headache, and pulse at first 50 and gradually increasing to 150. Withdrawal by lumbar puncture of a clear and sterile spinal fluid under 200 mm. pressure was followed by great improvement. A few weeks later a granuloma had to be removed from the ear, and the brain symptoms recurred; pulse 145, subfebrile temperature, vertigo, severe headache especially in the occiput, and the patient, a man of 24, did not reply coherently to questions but wept quietly all the time. On suspicion of an abscess the cerebellum and temporal lobe were punctured. Above and a little behind the mastoid process the needle encountered an accumulation of a clear fluid which spurted under high pressure; about 55 c.c. of fluid was thus released and all the symptoms had subsided by the end of 24 hours.

85. **Operation for Perforated Gastric Ulcer.**—Mühsam reports three cases in which perforated gastric ulcer was successfully sutured and a gastroenterostomy made. Radiographs of the cases afterward show that the gastroenterostomy is working well. In nine other cases the patients succumbed notwithstanding operative treatment. His experience confirms the importance of a prompt operation and the superior advantages of suturing in the ulcer, reenforcing the suture with a piece of omentum. Only when this is impossible should excision be considered.

87. **Treatment of Serious Anemia with Intramuscular Injections of Blood.**—Huber remarks that no actual progress has been realized of late in treatment of pernicious anemia. The trouble is seldom recognized early enough for effectual treatment, but his experience with four cases seems to confirm the possible benefit from transfusion of small amounts of defibrinated blood injected into the gluteal muscles. He describes these cases in detail, tabulating the blood findings, weight, etc., the figures showing the notable improvement that followed the injections. The first patient was a woman teacher with symptoms of severe pernicious anemia for three years. After 14 injections of 10 or 20 and up to 50 c.c. of blood in the course of 11 weeks the reds increased from 1,200,000 to 4,500,000 and the hemoglobin from 18 to 92 per cent. The benefit was equally striking in the case of a man of 41, given 9 injections in less than 3 months, the reds increasing to 5,200,000. In a young girl with ordinary anemia and chlorosis the hemoglobin increased from 40 to 75 per cent.

and the reds from 3,200,000 to 4,800,000. The blood injected subcutaneously does not pass directly into the circulation and is still evident four or five days later at the point, the reds still retaining largely their normal shape and staining properties, but the hemoglobin probably lakes out into the circulation and thus aids in restoring normal conditions in the general blood supply, or the injected blood may provide certain other substances lacking in pernicious anemia. The injections do not act on the cause of the anemia, and arsenic is needed for this. By-effects were rare and slight, merely occasional painfulness at the point of injection, most common when the gluteal muscles were firm and hard.

89. **Treatment of Bronchopneumonia in Young Children.**—Ibrahim urges the systematic use of inhalation of oxygen, or at least abundance of out-of-door air, and feeding through a stomach tube in the severe cases of bronchopneumonia in young children. He regards it as extremely important to keep the child well nourished and when it cannot feed naturally, he gives the food through a Nélaton catheter passed through the nose into the stomach. In one severe case he brought the infant through by feeding it in this way for several weeks with freshly drawn breast milk. Special care in the diet is necessary to prevent formation of gas in the stomach, as it pushes up the diaphragm and hampers the functioning of the diseased lung. He has not witnessed much benefit from expectorants, while they disturb the digestive apparatus. Heart tonics are useful or indispensable as anything that improves the circulation through the lungs has a beneficial influence on the pneumonic process. The latter taxes the heart more and more so that the heart needs strengthening by artificial aid, and heart tonics should not be postponed until a last resort. Even infants bear well repeated small doses of camphorated oil. Good nursing is indispensable to ensure the carrying out of the physician's orders, which should be explicit in every point in regard to the baths to reduce the temperature, the oxygen, frequent change of position, spraying and heart tonics.

90. **Rigidity of the Muscles and Apical Disease.**—Hart regards the rigidity of the muscles over the apex of the lung as a sign of a mechanical predisposition to disease, but no evidence that disease is already installed. He is prosector at the Schöneberg hospital and his findings contradict those of Pottenger in regard to the diagnostic significance of this rigidity.

93. **Tubercle Bacilli in the Blood.**—The bacilli were found in the circulating blood in 2 out of 12 patients in the early stages of tuberculosis and in only 5 in the third stage. The discovery of tubercle bacilli in the blood in incipient tuberculosis may thus prove a useful aid in early differentiation of the disease, but it does not seem to be of much importance for the prognosis.

Fortschritte der Medizin, Leipsic

June 2, XXVIII, No. 22, pp. 673-704

99 Flat-Foot. (Der Plattfuss.) G. Muskat.
100 *Foreign Bodies in the Heart. (Ueber Fremdkörper im Menschenherzen.) D. G. Zesas. Commenced in No. 21.

100. **Foreign Bodies in the Heart.**—Zesas tabulates 118 cases of foreign bodies in the heart which he has found on record. In 54 cases the foreign body was a needle, in 38 a bullet, but the list includes also nails, a thorn, a gold plate, an iron peg, splinter of wood or bone and a hairpin. The astonishing tolerance of the heart for a foreign body loose in its interior is demonstrated anew by some of the cases. Pointed objects, however, generally work into the heart wall and cause such disturbances that an attempt to remove them is justified and the list shows that this has been done in many cases. In 12 cases the foreign body had evidently reached the heart from the alimentary canal, in 4 through the blood vessels, and in 1 from the air passages. In only 96 had the projectile or other foreign body been propelled through the chest wall.

Medizinische Klinik, Berlin

June 5, VI, No. 23, pp. 889-926

101 *Bronchial Asthma in Relation to the "Exudative Diathesis." A. v. Strümpell.
102 *Physical Treatment of Bronchial Asthma. L. Hofbauer.
103 *Convulsions in Whooping-Cough and Their Treatment. (Krampfanfälle im Verlauf des Keuchhustens und deren Behandlung.) J. Ibrahim.
104 Influence of Diaphoretic Measures on the Wassermann Reaction. (Einfluss der Zittmannschen Kur auf den Ausfall der Wassermannschen Reaktion.) K. Stern.
105 Peculiar Form of Industrial Mercurial Poisoning. (Gewerblicher Quecksilbervergiftung.) J. Meinertz.
106 *Importance of Digestive Disturbances in Angina Pectoris. (Wirkung des Magnesiumoxyds und Hyperoxyds bei stenokardischen Anfällen.) F. v. Chlapowski.
107 Occurrence of Bacteria of Paratyphoid and Gärtner Group in Non-Specific Disease. H. Kathe.

June 12, No. 24, pp. 927-966

108 *Pathology of the Suprarenals. (Klinische Betrachtungen zur Lehre von den Erkrankungen der Nebennieren beziehungsweise des chromaffinen Systems.) E. Münzer.
109 *Operative Treatment of Puerperal Infection. (Zur chirurgischen Therapie des Puerperalprozesses.) W. Latzko.
110 Extraperitoneal Cesarean Section. (Der extraperitoneale Kaiserschnitt.) H. Fuchs.
111 Infection from Paracolon Bacilli. (Zur Kenntnis der Parakolibazillose.) A. Schutze.
112 Measurement of Volume of Air Breathed. (Ueber Atemvolummessung.) H. Gutzmann.
113 Dislocation of the Ulnar Nerve. Grunert.
114 Two Cases of Malignant Syphilis. K. Piorkowsky.
115 *Treatment of Tuberculosis with Natural Human Serum. H. Lichtenstein.
116 Paradoxical Experiences with the Wassermann Reaction. E. Meirowsky.
117 Technic for Quantitative Determination of Bromin. H. v. Wyss.

101. **Bronchial Asthma a Manifestation of the Exudative Diathesis.**—Von Strümpell makes a strong plea for the inclusion of bronchial asthma in the group of affections distinguished by a constitutional irritability of the nervous system and the tendency to exudative processes in the most various parts of the body, as in urticaria, eczema, intermittent swelling of the joints, angioneurotic edema and nasal and intestinal catarrh. He mentions also migraine as a candidate for this group and thinks that bronchial asthma is a typical instance of this constitutional tendency, as also membranous enteritis. In the latter the secretory disturbances in the mucosa of the large intestine are accompanied with spasmodic contraction of the bowel, analogous to the spasm of the bronchi with this form of asthma. Colica mucosa may thus be entitled "intestinal asthma." The causal connection between the various members of the group are often encountered in the one individual or in members of the same family. The conception of the exudative diathesis in children thus throws light on these affections in adults, which hitherto have been regarded as isolated, but now can be seen to be linked together on a constitutional basis. The nervous factors explain the benefit at times from atropin and other drugs and suprarenal preparations, although the individual reaction varies. His patients have been benefited most by the alkaline iodids and systematic application of incandescent electric light baths. Both act on the secretory processes in the body and have proved effectual in his hands, supplemented by dietetic restrictions, especially to prevent overfeeding.

102. **Electric Light Baths in Bronchial Asthma.**—Hofbauer remarks that bronchial asthma is the latest child adopted by physical therapy and even yet clinical medicine looks askance on this adoption. The incandescent light baths induce active hyperemia of the skin, reducing the congestion in the bronchi, while the heat causes a reflex prolongation of the respiration. The baths should be supplemented by breathing exercises to lengthen the phase of expiration while the patient emits a musical note. Hofbauer has cured a number of patients by these breathing exercises, the cure remaining complete for over two years. By training the patients to avoid irritating the vagus with hasty breathing, the expiratory insufficiency, and thus the distress, is combated and the cause for the attack eliminated.

103. **Convulsions in Whooping-Cough.**—Ibrahim found that a brain tumor was responsible for the convulsions in the course of whooping-cough in one case. In two others the use of packs to induce sweating aggravated the condition, and these cases warn against procedures of the kind with a tendency to convulsions. In every case of whooping-cough with convulsions the diet should be regulated to combat the spasmophilic diathesis, avoiding cow's milk and giving phosphorus in cod liver oil, with lumbar puncture in the severer cases. Eckert has recently reported 4 cases in which lumbar puncture seemed to have turned the scale in favor of recovery.

106. **Dyspepsia as Factor in Angina Pectoris.**—Chlapowski has become convinced that dyspeptic disturbances are responsi-

ble for or at least aggravate angina pectoris in many cases and that great benefit can be derived from magnesium oxid and peroxid to neutralize abnormal production of gases and the gastric juice, and promote bowel functioning. Regulation of the diet between attacks is of supreme importance.

108. **Pathology of the Suprarenals.**—Münzer insists on the necessity of distinguishing between arteriosclerosis of the large vessels and of the smaller, the clinical manifestations being quite different. When the large vessels are affected with arteriosclerosis there is no obstruction to the circulation and the blood pressure is not raised. The work of the heart at each contraction is not much increased and consequently there is little, if any, enlargement of the heart. The blood wave reaches the periphery unobstructed and the pulse is full. The picture is different when the smaller vessels are affected with arteriosclerosis. Here the obstruction is so pronounced that the blood pressure rises, the second aortic sound is abnormally loud and the heart becomes hypertrophied. The higher blood pressure precedes the changes in the kidney, resulting in contracted kidney. The primary cause is some disturbance in the suprarenals, as he shows by 6 typical instances of Addison's disease in patients from 16 to 66 years old. In each case there were depression, vomiting, diarrhea, repugnance to food. Tuberculosis was evidently the cause in 2 cases but in 2 others the etiology was obscure; gonorrhea or influenza might be incriminated in the others.

109. **Surgical Treatment of Puerperal Fever.**—Latzko reviews the autopsy findings in 231 cases of fatal puerperal fever, the mortality being 33 per cent. Peritonitis was responsible for the fatality in more than half the cases. Hysterectomy is generally too serious an operation in these conditions and the best results were obtained with laparotomy and drainage. He had 17 patients recover out of 80 treated in this way. The prognosis depends more on the eventual paresis of the intestine than on the quality of the pulse; some of the patients were saved when the pulse was so weak that anesthesia was contraindicated, while only one of the patients with paralyzed bowels was saved, and in this case two fistulas had been opened into the intestine. It is possible, he remarks, that better results might be obtained if fistulas were made earlier and in sufficient numbers. In 19 of the severest cases the uterus was removed, with recovery of 8 of the patients, even with extension of the process into the veins. Puerperal parametritis, he adds, is the phlegmasia alba dolens of the broad ligament. His experience indicates that operative treatment is required not only for processes in the uterus, with fever, inflamed myoma, or retention of fetal membranes that cannot be removed otherwise, but also for cases in which the temperature persists over 39 C. (102.2 F.) for more than 24 hours; only 4 of the patients survived in 23 of his cases of this kind; that is, the mortality was 83 per cent. Operative treatment is also indicated in cases with repeated and frequent chills, and cases in which clinical observation leaves a doubt as to possibility of spontaneous recovery, his view being that we are responsible not for operating but for not operating.

115. **Treatment of Tuberculosis with Natural Human Serum.**—Lichtenstein has found that injection into the wall of the abdomen of 2 or 5 c.c. of natural human serum seems to have a stimulating and curative action, inducing a transformation comparable to that from a change to a mountain climate.

Monatsschrift für Kinderheilkunde, Berlin

April, IX, No. 1, pp. 1-64

118 *Etiology of the Spasmophilic Diathesis. R. Quest.
119 *The Cammidge Reaction in Children. P. Grosser and H. Kern.
120 *Lime Metabolism in Tetany. (Kalkstoffwechsel bei Tetanie.) J. A. Schabad.
121 Case of Typhoid in Nursing Mother and Babe. (Milchabsonderung während des Verlaufes von Typhus abdominalis.) G. Genersich.
122 *Etiology of Summer Cholera Infantum. (Zur Aetiologie des Sommerbrechdurchfalls der Säuglinge.) H. Rietschel.
123 Intrauterine Transmission of Malaria. W. Pies.
124 Use of Calcium Peroxid for Preservation of Human Milk. (Verwendung von CaO_2—Kalkodat—bei der Konservierung von Frauenmilch.) E. Mayerhofer and E. Pribram.

118. **Etiology of the Spasmophilic Diathesis.**—Quest reports the results of experimental research and clinical experience by himself and others, all of which confirms the assumption that a lack of lime is the main factor in the development of tetany. This lack of lime may result from various causes but the principal one is an unsuitable diet, an excess or imperfect digestion of milk-fat causing the latter to seize on the lime and eliminate it in the lime soap stools, regardless of the amount of the intake. An exclusive carbohydrate diet, on the other hand, may fail to supply an adequate proportion in the food. The remarkable influence of phosphorus-cod-liver oil is due to its favoring retention of lime rather than to any direct antispasmodic action. His research suggests further a possible advantage from injections of lime salts as an adjuvant with a long chronic and inveterate tendency to tetany.

119. **The Cammidge Reaction in Children.**—Grosser and Kern have applied this test to 65 infants and obtained a positive reaction in 8 infants, that is, in 13 of the 130 tests. The test revealed the presence of lactose even when other tests failed, but the reaction did not seem to have any special significance for the prognosis or have anything to do with the pancreas.

120. **Lime Metabolism in the Spasmophilic Diathesis.**—Schabad reports further research in this line comparing his results with those of others, during and between the periods of pronounced tetany, and with and without administration of phosphorus and cod liver oil, and also as to the electric excitability. All confirm the beneficial action of phosphorus-cod-liver oil, both on the spasmophilic diathesis and in rachitis, both improving together when associated.

122. **Etiology of Cholera Infantum.**—One room in the Infants' Asylum at Dresden in charge of Rietschel is kept at a temperature of 27 or 28 C. (82 F.) for the use of the prematurely born, instead of individual incubators. Other infants were sometimes kept in this room until he noticed that they all developed diarrhea. This suggests that the heat alone—aside from the nature of the food—may have a direct injurious action on young children. In the homes of the poor in summer this temperature of 28 C. (82 F.) is often surpassed. The causal factor in cholera infantum may thus be the heat in the living rooms, reducing the tolerance for injurious influences from the food.

Münchener medizinische Wochenschrift

June 14, LVII, No. 24, pp. 1265-1320

125 Ligation to Exclude Limbs from Circulation as Substitute or Adjuvant for Venesection. (Ueber den Aderlass bei Kreislaufstörungen und seinen unblutigen Ersatz.) D. v. Tabora.
126 General Distribution of Streptococci. (Verbreitung der Streptokokken im Hinblick auf ihre Infektiosität und ihre hämolytische Eigenschaft.) W. Zangemeister.
127 Obstetrics in the Home and in Maternities. (Geburtshilfe im Haus und in der Klinik.) M. Nassauer.
128 Treatment of Hypertrophy of the Prostate. L. Kielleuthner.
129 Serodiagnosis of Syphilis. A. Wassermann and G. Meier.
130 Cell Inclusions in Non-Gonorrheal Urethritis. W. Siebert.
131 Three Cases of Chronic Primary Progressive Polyarthritis in Children. F. Brandenberg.
132 Optic Measurement of Systolic Blood Pressure. (Messung des systolischen Blutdrucks auf optischem Wege.) M. z. Verth.
133 The Side-Chain Theory is Confirmed by Progress of Science. (Ist die Ehrlichsche Seitenkettentheorie mit den tatsächlichen Verhältnissen vereinbar?) P. Ehrlich and H. Sachs.
134 *Importance of Lavage of the Stomach in Treatment of Disease in Various Viscera. (Ueber die Magenspülung auf neuen Indikationsgebieten und in modifizierter Anwendungsform.) K. Strübe. Commenced in No. 23.

134. **Enlargement of the Therapeutic Scope of Lavage of the Stomach.**—Strübe for over a year and a half has been applying lavage of the stomach as a means to influence adjacent organs, and he reports favorable results in diabetes, liver affections, etc. His statements are so remarkable that his communication was not allowed to be presented at the recent annual meeting of the German internists but the *Wochenschrift* prints it in full. The lavage, he says, stimulates the circulation in the region and this promotes absorption, and this is particularly beneficial in the secondary diabetes due to injury of the pancreas from gastrointestinal catarrh, constipation, duodenal ulcers or pneumonia of the left lower lobe—cases of all these types being among his clinical material. The frequent coincidence of gastrointestinal disturbances with diabetes suggests that essential diabetes may often commence with mere secondary glycosuria, which could be readily cured in time by appropriate measures. The case histories of 10 cases of diabetes are given to illustrate the prompt benefit from repeated lavage. Instead of weeks and months of

dietetic restrictions, he says, lavage repeated a few times banished the sugar from the urine and the patients were able to eat carbohydrates at will even without any restrictions as to diet. Lavage of the stomach should at least be given a trial, he declares, in every case of diabetes, especially in the incipient phases. In biliary affections, siphonage through the stomach sound starts an outward flow of bile which may have a curative effect; it should be given a trial with chronic typhoid bacillus carriers. In every case of catarrhal jaundice he keeps the patient in bed for three or four days with cold water compresses to the gall-bladder region and then commences the lavage. At the first application the bile flows out in a stream with the rinsing water and by the end of the week recovery is generally complete. The first acute catarrhal manifestations must be allowed time to subside before the lavage is applied, but treatment on these principles has given gratifying results constantly in the four years since he has been applying it. The relief of the liver from congestion ensured by this technic is a potent factor in the cure. In one case described the gush of bile induced by the lavage washed out an impacted gall-stone in the common bile duct, and he now applies lavage systematically in all gall-stone cases, especially after operative treatment, and in case of a bile fistula. The lavage has also proved effectual in relieving pruritus ani, and other toxic skin affections, obstinate acne accompanying chronic gastritis, etc. Psychoneuroses connected with stomach disturbances and neurasthenia also benefit by lavage of the stomach, as he illustrates by some concrete instances, insisting that psychoneuroses and neurasthenia in general will have to be placed on a broader hygienic-dietetic basis. Bronchial asthma also benefits by lavage of the stomach, possibly by the relief to the circulation in the lungs in addition to its reflex and cleansing action. He burns with a hot nail about a dozen extra holes above the usual side openings in the stomach tube; they serve as safety valves and aid in more thoroughly flushing the stomach. The teeth are held apart with a rectangular block of hard rubber with a groove in the top in which fits the stomach tube; such a block, with all plane surfaces, is more readily sterilized than the ordinary gags.

Therapie der Gegenwart, Berlin

July, LI, No. 6, pp. 241-288

135 The Tenacity of Cellular Activity and its Relation to Pathology. (Ueber die Tenazität der Zelltätigkeit und ihre Beziehungen zur Pathologie.) W. Leube.
136 *Mechanism of Action of Artificially Induced Pneumothorax in Treatment of Pulmonary Tuberculosis. C. Forlanini. Commenced in No. 5.
137 *Practical Availability of the Desmoid Reaction. (Die Brauchbarkeit der Sahlischen Desmoidreaktion in Klinik und Praxis.) Weiland and Sandelowsky.
138 *Long Cocoa Butter Suppositories to Promote Defecation with Proctitis, etc. (Ueber Klystier-Ersatz-Therapie.) W. Unna.
139 Treatment of Amebic Dysentery. E. Axisa.
140 Treatment of Delirium Tremens with Veronal. E. von der Porten.
141 *Treatment of Erysipelas with Heat. (Ein altes in Vergessenheit geratenes hyperämisierendes Mittel.) C. Ritter.
142 *Intermittent Limp. (Ueber Gangstockung—intermittierendes Hinken.) G. Muskat.
143 Coarse Food for Mechanical Stimulation of Gastric Secretion. (Behandlung subazider Zustände mit mechanisch reizender Kost und mit Zitronensäure.) L. Roemheld.
144 Comparative Size of Bubbles in Oxygenated and Carbonated Baths. (Grösse der Bläschen im Ozetbade und im Kohlensäurebade.) L. Sarason.
145 *Training Children to Prevent Tendency to Constipation. (Ist die Ausdrucksweise "angeborene Hartleibigkeit" eine richtige Bezeichnungsweise?) R. B. Budberg.

136. **Artificially Induced Pneumothorax in Pulmonary Tuberculosis.**—Forlanini here lays down more carefully the fundamental principles of this method of treatment and presents a number of instructive cases from his extensive experience as he has followed them through a number of years.

137. **Availability of the Desmoid Reaction in General Practice.**—This communication from the medical clinic at Kiel in charge of Lüthje relates experiences with 145 cases of various stomach affections in which the functioning of the stomach was investigated by Sahli's desmoid test; that is, ingestion of a stain wrapped in a square of fine rubber tissue, tied with catgut. With normal digestion the catgut is speedily dissolved and the stain passes into the urine or saliva. In over 70 per cent. of the cases the reaction paralleled the findings in the stomach content, removed with a tube; in only 6 per cent. were the findings contradictory and these might be explained by defective technic. The test realizes in practice, he declares, all that Sahli claims for it. It is a reliable means for determining the conditions in the stomach in regard to digestion and differentiating malignant from non-malignant disturbances. It is important to make the desmoid bag one's self, and fresh each time, the little bags not keeping well; another point is to test their weight, as they must be heavy enough to sink to the bottom of a basin of water and not permit any of the stain to diffuse before the catgut is loosened. (It has been suggested that an ether pearl might be used in the little bag instead of a stain, the patient perceiving at once by the eructation when the ether escapes from the bag.)

138. **Suppository for Inflamed Rectum.**—Unna commends the use of large suppositories of cocoa butter, fully 8 cm. long by 1 or 2 cm. wide, medicated or not. They lubricate the feces and permit painless and non-irritating defecation in proctitis. The addition of a little cholic acid is said to stimulate peristalsis.

141. **Heat in Treatment of Erysipelas.**—Ritter's views were recently summarized in these columns, page 176. He commends a hot flat-iron as a convenient means of applying heat to erysipelatous patches, especially on the face, repeating the application for ten or fifteen minutes three times a day. He found mention of this method of treatment in a letter to Mme. de Sévigné dated 1694, it having been applied for an acute rheumatic shoulder trouble.

142. **Intermittent Limp.**—Muskat says that the disturbance known by this name is not limping—no attempt is made to walk while the attack lasts—and he adds another to the already long list of descriptive terms that have been proposed for it. In differentiating the condition it is important to exclude disturbances due to flat-foot, sciatica and articular rheumatism, and also the angiospasm liable to accompany flat-foot. Ortner has observed similar angiospasms in the intestines which he ascribed to abuse of tobacco, as excessive smoking brought on the spasms and abstention from tobacco abolished them, while they recurred on resumption of tobacco. Nicotin seems to act on the vasomotors and it may lead to pathologic changes in the arteries, especially the changes which entail intermittent limp. The Roentgen rays may reveal calcification of the arteries with the loss of the pulse in the foot, but even in these cases much benefit may be derived from light massage, the iodids, warm baths, the high frequency current and four-celled electric baths, with scrupulous avoidance of further injurious influences, nicotin, alcohol, worry, mental or physical overexertion, chilling, etc. These measures may arrest the process and ward off impending gangrene and a cure may follow unless the calcification of the arteries has progressed too far. The changes in the artery generally begin at the toes and work upward. Payr has reported a case in which gangrene was averted by implanting the femoral artery in the femoral vein.

145. **Prevention of Constipation in the Young.**—Budberg writes from China to call attention to the constant absence of constipation among the children in the Orient. He ascribes this to the regular habits in respect to defecation impressed on the children from birth. When it wakes in the morning even the new-born infant is trained to defecate at once. The mother takes the rump of the infant between her hands and holds the child up, its back toward her, pressing its thighs against its abdomen while her thumbs push on its back or she presses its back against her knee or breast. This position impels the infant to strain, and the mother talks soothingly to it to facilitate its yielding to this impulse. In China and Japan, consequently, he says, the infant of even two months keeps clean and dry while all the ills of constipation in infants and children are thus averted by these regular habits.

Wiener klinische Wochenschrift, Vienna

June 9, XXIII, No. 23, pp. 839-880

146 *Coagulation of the Blood from the Biochemical and Clinical Standpoint. (Die Blutgerinnung in ihren biochemischen und klinischen Beziehungen.) H. Weiss.
147 Period of Incubation. II. (Ueber Inkubationszeit.) F. Hamburger and O. Schey.

148 Putrefaction of Vegetable Albumin. (Studien über Darmfäulnis. IV.) A. Rodella.
149 Relations Between the Transformation of the Mineral and Organic Elements of the Food. (Beziehungen zwischen dem Umsatz mineralischer und organischer Nahrungsstoffe.) E. Biernacki.
150 An All-Metal Pocket Tonometer. (Ein Blutdruckapparat für die Praxis.) A. Selig.

146. **Coagulation of the Blood from the Biochemical and Clinical Standpoint.**—Weiss reports extensive and systematic study of the coagulating power of the blood in adults and children, using a Wright pipette. In 54 healthy adults the blood coagulated between 2 minutes and 15 seconds and 2 minutes and 40 seconds; in 58 healthy new-born infants, in the breast-fed it coagulated in from 2½ to 3½ minutes, while in the artificially fed children it coagulated in from 1½ to 2½ minutes—this difference he ascribes to the larger proportion of lime in the food of the artificially fed. In 28 cases of acne or furunculosis the coagulating time was unusually long, as also in scorbutus and eczema. These findings suggest that these skin diseases are the result of disturbed metabolism of mineral salts. The coagulating time was also unusually long in the spasmophilic diathesis, epilepsy, chorea, eclampsia, chlorosis, severe anemia, leukemia and tetany; also in 3 cases of acromegaly, several of goiter and 2 cretins and in acute nephritis. The coagulating time was very brief in jaundice and cancer. He discusses these findings from various points of view, especially the beneficial action of lime to promote coagulation, preferring the lactate, as this is exceptionally soluble. Its action is evident in 45 minutes and lasts for weeks, but the dose must not be too large—2 or 3 gm. (30 to 45 grains) a day in an adult for five or six days and half this amount for children. The result is much more certain than that from injection of serum or gelatin. To retard coagulation, as in thrombosis, he advises 5 or 6 gm. citric acid a day for three days, but the action is slower in manifesting itself and it persists only for a few days; but it may retard coagulation from 1 to 3 minutes.

Zentralblatt für Chirurgie, Leipsic

June 18, XXXVII, No. 25, pp. 849-880

151 *Surgical Sterilization of the Skin. (Zur Vereinfachung der Hautdesinfektion.) O. Lanz.
152 *Isolated Atrophy of Muscle as a Diagnostic Symptom for Localization of Tuberculous Foci in Bone. P. Niehans.

151. **Surgical Sterilization of the Skin.**—Lanz regards the tincture of iodin method of sterilization as valuable under certain circumstances, as in war, etc., but not for routine surgical sterilization. He is convinced that the surgeon's hand is the main source of trouble. As the French say, "Cherchez la femme" in all difficulties, so he says, "Cherchez la main."

152. **Atrophy of Muscle Above as Sign of Tuberculous Focus in Bone.**—Niehans has been studying for ten years the condition of the muscles in connection with bone foci, and has frequently found distinct atrophy of the muscle or group of muscles inserted in the diseased bone or having its origin near the focus. This may often clear up the diagnosis.

Zentralblatt für Gynäkologie, Leipsic

June 18, XXXIV, No. 25, pp. 833-864

153 *Experiences with Intravenous Ether General Anesthesia. (Versuche mit intravenöser Narkose.) H. Schlimpert.
154 Allowing Parturients to Get Up Early. (Das Frühaufstehen Wöchnerinnen.) D. von Velits.

153. **Intravenous General Anesthesia.**—Schlimpert gives the details of six cases in which was applied Burkhardt's technic for general anesthesia by injection of a 5 per cent. solution of ether into a vein. The conclusions are decidedly against this method of anesthesia, principally on account of the frequency of thrombus formation at the point of injection, the increased blood pressure, the difficulty of keeping the concentration of the ether at the desired point on account of its rapid evaporation, and the necessity for incising the vein. The anesthesia was imperfect or the procedure was interrupted on account of a thrombus in all but one of the cases.

Zentralblatt für innere Medizin, Leipsic

June 18, XXXI, No. 25, pp. 625-648

155 Digestive Leukocytosis in Laboratory Animals. (Leukocytose im Tierexperiment.) C. Klieneberger and W. Carl. Commenced in No. 24.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 14, XXXI, No. 71, pp. 753-760

156 Hernia in the Persisting Canal of Nuck. O. Ortali.

June 19, No. 73, pp. 769-784

157 Fetal Monstrosities and Vitality from the Medicolegal Standpoint. (Mostruosita fetali e vitalita.) E. Di Mattei.

June 21, No. 74, pp. 785-792

158 Experimental Research on the Functioning of the Vagus. (Ricerche sul vago.) A. Berti.

Policlinico, Rome

June 19, XVII, No. 25, pp. 771-802

159 Modern Prophylaxis of Typhoid. T. Pontano.
160 *Cause and Transmission of Pellagra. L. W. Sambon.
161 Hemorrhagic Nephritis as an Inflammatory Process Secondary to Acute Infections and Subsiding with Them. E. Magni.

160. **Minute Sand-Fly Responsible for Transmission of Pellagra.**—Sambon gives the reasons which have convinced him that pellagra is of parasitic origin and that the parasite is transmitted by a minute biting midge, a *Simulium*, as mentioned in a news item in THE JOURNAL recently. His study of pellagra in Italy in 1900 established to his satisfaction that the cause must be sought elsewhere than in corn, and his research in London last winter confirmed the possibility of transmission of the disease by the *Simulium*, and his investigations now being conducted in Italy have, he declares, definitely established it as a reality. Pellagra follows water courses, and only persons much in the open are attacked. The midge in question breeds in water and does not seek to enter houses. The disease is not contagious, and its peculiar incidence in families is due to the fact that those infected elsewhere return home later and are the only ones affected. When all the members of the family are exposed to the bites of the *Simulium* they are all liable to contract the disease. He has encountered entire families in which all the members from the babe in arms upward were affected. In one family near Padua there were five children between 3 and 12 presenting the skin manifestations in the most pronounced form. The manifest connection with breeding places and habitats for the sand-flies, the exemption of inhabited centers, the season in which the disease appears and the prevalence of the *Simulium* in all the localities examined where pellagra is endemic, are only part of the evidence incriminating these midges. (Sambon has now returned to England; among his companions in the pellagra commission in Italy for part of the time were three Americans, Captain Tiler and Drs. Lavinder and Blue, of the P. H. and M.-H. S.)

Riforma Medica, Naples

May 30, XXVI, No. 22, pp. 589-616

162 *Oriental Sore. (Nuovi esempi clinici di bottone d'Oriente.) U. Gabbi and F. Lacava.
163 Diagnostic Significance of Isohemolysins in the Blood with Cancer. (Sul valore del repertoe di isolisine nel siero di sangue per la diagnosi dei tumori maligni.) B. Agazzi.
164 Pseudo-Pleurisy. (La sindrome pseudo-pleuritica da abbondante versamento pericardico.) A. M. L. Martelli.

Norsk Magazin for Lægevidenskaben, Christiania

June, LXXI, No. 6, pp. 569-656

165 *Chronic Nicotin Poisoning. (Kronisk nikotinforgiftning. Skraatobak.) A. Tanberg.
166 Recent Achievements in Study of the History of Medicine. (Hovedpunkter i den senere tids medicinsk-historiske forskning.) F. Grøn.
167 *Action of Alcohol on Powers of Perception and Memory. (Om virkningen af 15-50 cm³ koncentreret spiritus paa erindringsevnen.) R. Vogt.

165. **Chronic Nicotin Poisoning.**—The symptoms in the case described suggested beriberi, as no other cause could be found for the disturbances noted during the last six years, but the patient had never been where beriberi was endemic. There were no indications of syphilis or alcoholism and the patient smoked merely one or two cigars a day. The digestive, sensory and motor disturbances, tachycardia, arrhythmia and insomnia persisted unmodified by staying in bed, but the casual discovery of a plug of chewing tobacco gave the clue to the diagnosis. It seems that the man had been in the habit of chewing about 40 gm. of plug tobacco daily. Complete suspension of tobacco soon banished all the symptoms, but they returned promptly a few months later when he tried to resume the habit. No other treatment for the chronic nicotin poisoning was needed beyond the mere abrupt suspension of the tobacco. In a case reported by Kjellberg there

were serious psychic symptoms, and he found it necessary to taper off the tobacco instead of abruptly suspending its use.

167. **Influence of Alcohol on Powers of Perception and Memory.**—Vogt tabulates the results of tests on himself through a number of months to determine the influence of a small amount of liquor on the power of concentrating the attention on and remembering 25 lines of a translation of the Odyssey, the blank verse being especially adapted for such tests. The alcohol had an unmistakable influence in reducing the powers of perception, and this effect was twice as marked on a fasting stomach.

Ugeskrift for Læger, Copenhagen

May 26, LXXII, No. 21, pp. 601-634

168 Successful Operation for Ileus in Pregnant Woman Nearly at Term. (Ileus i Svangerskabet.) L. Meyer.
169 General Principles for Treatment of Obesity. (Afmagringskure.) E. Faber. Commenced in No. 20.

June 2, No. 22, pp. 635-660.

170 "Isolation" and "Separation" in Treatment of the Insane. F. Hallarger.

Upsala Läkareförenings Förhandlingar

XV, Nos. 4-5, pp. 211-364. Last indexed May 14, p. 1660

171 *The Sensory Tracts in the Spinal Cord, Studied Especially after Stabwounds. (Ueber die Bahnen der Sensibilität im Rückenmarke, besonders nach den Fällen von Stichverletzung studiert.) K. Petren.
172 *Two Cases of Tumor in the Heart. (Bidrag till kännedomen om hjärttumorernas patologi och symtomatologi.) L. Ehrenberg.
173 *Neurasthenia in College Students and its Prognosis. (Om studie-neurasteniens prognos.) R. Friberger.
174 Surgery of the Kidneys Among the Ancients. (En blick i njurkirurgiens äldre historia.) G. Ekehorn.

171. **Sensory Tracts in the Spinal Cord.**—Petren has been studying the paths for the conveyance of sensory impulses by their partial exclusion after stab wounds of the spinal cord. The details of 93 such cases from the literature and his own experience are tabulated. The comparative study of this material confirms his previous assertions in regard to the anatomy and physiology of sensory conduction.

172. **Two Cases of Tumor in the Heart.**—Ehrenberg's first patient was a factory hand about 49 years old with a sarcoma in the heart and contiguous veins. He has found 17 cases on record of a sarcoma in the heart. The right heart was the seat of the sarcoma in all but 3 of these cases. Compression or obliteration of the superior vena cava induced the predominant symptoms in most of them. In Ehrenberg's second case there was a large metastatic cancer in the right ventricle in a woman of 58; the compression of the conus arteriosus induced a systolic blowing sound at the pulmonary artery. The tricuspid stenosis which is generally associated with a tumor growth in the heart, may render the pulse extremely small or even inaudible. In a recent case of embolism in the pulmonary artery the pulse ceased to be palpable after development of the embolic thrombus, and persisted imperceptible for six hours till death. The condition in this case is thus comparable to that with a tumor in the heart, having induced tricuspid stenosis.

173. **Neurasthenia from Over-Study.**—Friberger has encountered 40 cases of neurasthenia in students, the nervous symptoms interfering with their further studies although with no impairment of will power. The clinical course and after-history are compared. All but 3 of the patients were men and they were nearly evenly divided among the various departments of the university; 11 were medical students. The essential feature of the syndrome is the lack of power of concentrating the mind. Sometimes this lack was continuous, in other cases only for a few hours each day. Abnormal sensations in the head are common, a sensation of pressure or tension in the back of the head and neck, not painful, but diverting the attention from the studies. The sensation of pressure may merge into paresthesias of various kinds. These sensations in the head and neck were frequently accompanied by muscular exhaustion, restlessness and insomnia and a sense of dread; palpitations of the heart were observed in 16 cases. Treatment was by general hygiene, hydrotherapy and change of scene combined with regulation of mental effort, directing the patients to study only 45 minutes or an hour at a time, resting for similar intervals. In health less work is accomplished by such interruptions, but neurasthenics attack their work with fresh courage and energy after the rests. Alcohol and venereal excesses could only exceptionally be incriminated in the etiology, but an inherited taint was discovered in from 41 to 73 per cent. in the various groups. The disturbances lasted on an average 8 to 13 months, but in some cases from 4 to 9 years and in a few rare cases with marked heredity and nervous childhood the condition seems to be chronic. Friberger does not know of any similar study of the heredity and outcome of neurasthenia brought on by over-study.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

STUDIES ON LEPROSY. VII. A Statistical Study of an Endemic Focus of Leprosy. By Walter R. Brinckerhoff, M.D., Assistant Director, and A. C. Reinecke, Technical Assistant, Leprosy Investigation Station, Public Health and Marine-Hospital Service. A Palliative Treatment for Leprous Rhinitis. By James T. Wayson, M.D., Member of the Board of Health of the Territory of Hawaii, and A. C. Reinecke, Technical Assistant, Leprosy Investigation Station, Public Health and Marine-Hospital Service. Public Health Bulletin No. 33, U. S. P. H. and M.-H. S. Paper. Pp. 25. Washington: [Superintendent of Documents] Government Printing Office, 1910.

SERUMS, VACCINES AND TOXINS IN TREATMENT AND DIAGNOSIS. By W. Cecil Bosanquet, M.D., Assistant Physician to the Charing Cross Hospital and to the Hospital for Consumption and Diseases of the Chest, Brompton, and John W. H. Eyre, M.D., Bacteriologist to Guy's Hospital and in Charge of the Vaccine Department. Second Edition. Cloth. Price, $2 net. Pp. 362, with illustrations. New York: Funk and Wagnalls Co., 1910.

HYGIENE AND PUBLIC HEALTH. By B. Arthur Whitelegge, M.D., late County Medical Officer of Health for the West Riding of Yorkshire, and George Newman, M.D., Lecturer on Public Health at St. Bartholomew's Hospital (University of London). Cloth. Price, $1.75 net. Pp. 650, with illustrations. New York: Funk and Wagnalls Co., 1910.

A MANUAL OF OPERATIVE SURGERY. By Sir Frederick Treves, Bart., F.R.C.S., Serjeant-Surgeon to H.M. the King, and Jonathan Hutchinson, F.R.C.S., Surgeon to and Lecturer on Surgery at the London Hospital. Third Edition. In Two Volumes. Vol. II. Cloth. Price, $13. Pp. 821, with 495 illustrations. Philadelphia: Lea & Febiger, 1910.

FIRST PRINCIPLES OF AGRICULTURE. By Emmet S. Goff, Late Professor of Horticulture, University of Wisconsin, and D. D. Mayne, Principal, School of Agriculture, St. Anthony Park, Minn. Introduction by Ex-Governor W. D. Hoard. Cloth. Price, 80 cents. Pp. 262, with illustrations. Chicago: American Book Co., 1910.

GENERAL OBSERVATIONS ON THE BIONOMICS OF THE RODENT AND HUMAN FLEAS. By Maurice B. Mitzmain, M.S., Assistant, Plague Laboratory, U. S. P. H. and M.-H. Service. Public Health Bulletin No. 38. U. S. P. H. and M.-H. S. Paper. Pp. 34. Washington: [Superintendent of Documents] Government Printing Office, 1910.

DISEASES OF THE HEART AND AORTA. By Arthur D. Hirschfelder, M.D., Associate in Medicine, Johns Hopkins University. With an Introductory Note by Lewellys F. Barker, M.D., Professor of Medicine, Johns Hopkins University. Cloth. Price, $6. Pp. 632, with 329 illustrations. Philadelphia: J. B. Lippincott Co. (1910).

LEHRBUCH DER OHRENHEILKUNDE. Von Dr. Victor Urbantschitsch, O.O. Professor der Ohrenheilkunde an der Wiener Universität und Vorstand der K. K. Universitätsklinik für Ohrenkranke. Fifth Edition. Paper. Price, 18 marks. Pp. 623, with 156 illustrations. Vienna: Urban & Schwarzenberg, 1910.

THE RELATION OF CLIMATE TO THE TREATMENT OF PULMONARY TUBERCULOSIS. By F. C. Smith, Passed Assistant Surgeon. Public Health Bulletin No. 35, U. S. P. H. and M.-H. Service. Prepared by Direction of the Surgeon-General. Paper. Pp. 17. Washington: Government Printing Office, 1910.

TUBERCULOSIS, ITS NATURE AND PREVENTION. By F. C. Smith, Passed Assistant Surgeon. Public Health Bulletin No. 36, U. S. P. H. and M.-H. Service. Prepared by Direction of the Surgeon-General. Paper. Pp. 12, with illustrations. Washington: Government Printing Office, 1910.

FORTY-SECOND ANNUAL REPORT OF THE SECRETARY OF STATE ON THE REGISTRATION OF BIRTHS AND DEATHS, MARRIAGES AND DIVORCES IN MICHIGAN. For the Year 1908. Frederick C. Martindale, Secretary of State. By Authority. Cloth. Pp. 176. 1910.

THE BLEACHING OF FLOUR AND THE EFFECT OF NITRITES ON CERTAIN MEDICINAL SUBSTANCES. By Worth Hale. Hygienic Laboratory Bulletin No. 68, June, 1910. Paper. Pp. 44. Washington: [Superintendent of Documents] Government Printing Office, 1910.

STUDIES ON ANAPHYLAXIS. With Special Reference to the Antibodies Concerned. By John F. Anderson and W. H. Frost. Hygienic Laboratory Bulletin No. 64, June, 1910. U. S. P. H. and M.-H. S. Paper. Pp. 56. Washington: [Superintendent of Documents] Government Printing Office, 1910.

ERGEBNISSE DER CHIRURGIE UND ORTHOPÄDIE. Herausgegeben von Erwin Payr, Greifswald, und Hermann Küttner, Breslau. Erster Band. Paper. Price, 20 marks. Pp. 526, with 152 illustrations. Berlin: Julius Springer, 1910.

HANDBUCH DER NEUROLOGIE. Herausgegeben von M. Lewandowsky. Vol. I, Allgemeine Neurologie. Paper. Parts I and II. Price, 68 marks. Pp. 2015, with 334 illustrations. Berlin: Julius Springer, 1910.

TRANSACTIONS OF THE FLORIDA MEDICAL ASSOCIATION FOR THE YEAR 1910. Held at Jacksonville, Florida, April 6, 7, 8, 1910. Paper. Pp. 204.